ADVANCED USER'S MANUAL

(Version:7.13a, October 2010)

This guide explains in detail all functionalities of the PlayBox software modules.

Current software versions:

AirBox:	4.0 (Build 991)
CaptureBox:	2.6 (Build 391)
FinishBox LE:	2.7 (Build 69)
DataBox:	2.2 (Build 273)
TitleBox:	3.1 (Build 825)
ListBox:	4.0 (Build 983)
SafeBox:	1.0 (Build 127)
Trimmer Server:	1.0.0 (Build 62)
Multi AirBox Manager:	1.0 (Build 30)
Multi Backup Manager:	1.0 (Build 39)
AlarmBox:	1.0 (Build 34)
TimeShiftBox:	1.0 (Build 18)

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Preface

Dear **PlayBox** customer,
Thank you for purchasing our product! We would like to assure you that you have chosen the most cost effective and versatile TV automation system on the market. As always, we are trying to stay close to our customers' needs, making sure they all receive adequate support and satisfaction. Your opinion about our product is an exceptionally valuable source of information to us. The ease of working with the **PlayBox** products results mainly from the suggestions and comments of our current respected customers.

This manual is structured into several sequential chapters, each aiming to ease the installation, fine tuning and use of our products. We hope you'll enjoy working with it, and we are anxiously looking forward to receiving your feedback.

Please send your questions, suggestions, and assistance requests to:
support@playbox.tv

General feedback:
playbox@playbox.tv

Helpdesk fax number: +359 2 9717700

Style Conventions

- File names, software, documents or terms are written in *italics*
    - The data is written in the *settings.ini* file.
    - The file is located in *C:\Program Files\DMT**AirBox***
    - For further information read *Shortcuts* reference book.
    - The *VTR* is controlled via *RS-422*.

- Direct quotations from the computer screen are presented as follows:
    - **Menu Items and commands**
    - ***Tab/Page names***
    - **Column names (i.e. in a playlist or another grid)**
    - *Field names, check boxes*
    - ***Buttons***
    - Screen readings are written in [square brackets]
    - **The keyboard keys are enclosed in < > signs**
    - *Terms are described in the Glossary at the end of the manual*

- The arrows, used in setting procedures mean as follows:
    - ➔ A menu item follows;
    - ⇨ A page(tab) name follows;
    - → A field name, a check box name or a value name follows.

  Except for arrows, you can distinguish between the relevant menu categories also by the stiles, listed above.

Overview

I. PLAY BOX MODULES

The ***PlayBox*** system consists of several modules dedicated to separate applications that communicate with each other by proprietary protocols based on TCP/IP and UDP:

AirBox

The most important part of a transmission automation system. It performs on-air playback and control. The module is designed for uninterrupted 24 hours / 7 days-a-week content playout from online media storage. It can also be used as a production server with interactive capabilities such as Next, Jump, Cue, etc.

CaptureBox

Sophisticated ingest round the clock. CaptureBox controls *VTRs* via *RS-422* and automatically captures batch of scenes or programs. It also allows transferring a program to a tape precisely, using frame-accurate timecode positioning. Needless to say, it also provides semi- or completely automated scheduled capturing, GPI interface, VU/peak audio meters, and a number of other unique tools.

DataBox

DataBox represents the Database for metadata management of all kinds of content – either permanently available from online media or temporary available from a removable media such as videotape or *DVD*, or archived on a tape or a *DVD*. The metadata entered during content description is preserved and sufficient for compiling playlists, even if the media itself is not available.

ListBox

A standalone playlist editor, designed for arranging, previewing and trimming the available content without any hardware decoder requirements. It contains useful playlist features such as text searching, printing, etc.

TitleBox

TitleBox provides fully automated or interactive graphics overlay. It can also be synchronized to ***AirBox*** playout sequence. It allows insertion of text and dynamic graphic information in accordance to external data sources. Text information is received and rendered into high-quality graphics on-the-fly.

SafeBox

SafeBox is a flexible content management tool. It allows automated content transfer from remote locations to a local storage and vice versa. There is an additional facility for automated content removal from local storage when space is limited.

II. SOFTWARE UPDATES AND PROTECTION

Software Updates

Since all ***PlayBox*** modules are subject to constant development and improvement, please check our web site http://www.playbox.tv regularly for the newest versions. In order to make sure there is a reason to renew your current version, please check the *What's New* document online before downloading the new version.
It is not necessary to uninstall the old software versions before installing the new ones.
NOTE: You will be able to update your software only within the Software Maintenance Period!

You can check the status of your software maintenance period in the About dialog of each module. Just go to **Help** menu ➔ **About**.

The software installer will prevent you from installing software versions released after the end of the software maintenance period!

Software Protection

All ***PlayBox*** modules are protected by means of hardware USB keys (also referred to as "dongles"). You have to possess such a key in order to have a fully functional ***PlayBox*** module.

Before installing any of the ***PlayBox*** software modules, you need to download and install the currently supported WIBU driver from our website.

Then, update your dongle if necessary. Dongle updates are provided by our License Management department (contact support@playbox.tv). The ***PlayBox*** installer will not let you install any ***PlayBox*** modules unless you have them enabled on your dongle.

Then, follow the procedure as advised by our support personnel.

III. WORKFLOW BASICS

PlayBox as a TV automation system includes modules that automate particular processes in a typical TV organization. Most of these processes may coincide in time or their results may depend on each other, which leads to different ***PlayBox*** configurations.

Media Input

There are several content sources:

Non-linear video editing workstation with *MPEG2* or *DV* export.

Most contemporary NLE stations export either in *MPEG2* Program or Transport Streams (*MPG*), or *DV* files. You need to select your export format based on the playout compression selection.

Tape ingest.

Manual or automated tape ingest either in *MPEG2* or *DV* format.

Live sources – satellite feeds, etc.

Some of these sources come as *MPEG2* TS bouquets that have to be demultiplexed in order to extract the desired channel to be recorded. This is an integral part of ***CaptureBox***.

Content Management

DataBox can be used for classification and navigation through all the content available. Once classified content can be quickly searched, sorted and retrieved. All this is done by various properties such as title, ID, country, keywords, groups, language, distribution & usage rights, media description, credits, etc. All this metadata is associated with every piece of visual program in ***DataBox***.

Program Schedule Creation

While on-air playlists can be created and edited in ***AirBox***, ***ListBox*** is a full blown playlist editor with sophisticated editing features such as multi-selection, Excel export, search, print, etc. As opposed to ***AirBox***, ***ListBox*** does not require a special hardware platform in order to preview content and playlist. ***ListBox*** is typically used by Program Editors to create playlists prior to airing time.

Content Playout

AirBox performs content playout. The on-air program can be started manually or automatically at particular time, changed during the actual playback, interrupted when switching to other sources and so on. Various options provide redundant playout, multi-channel or multi-audio, subtitles, etc.

PlayBox system is designed to be easily used by everyone. A special training course or deep knowledge in computers is not strictly required. Anyone with basic computer knowledge will find using ***PlayBox*** modules as easy as 1-2-3. Moreover, all modules share the same visual and logical concept in order to minimize mistakes and confusion. Thus, we hope to make the operator's learning process even easier – once acquainted with some of the modules the others should look quite familiar.

In order to fully utilize the system's potential we recommend you to read carefully the following subchapters. Each chapter is related to a particular module and describes its workflow and specifics in detail.

The underlying sections will give you enough information to succeed in getting all the tasks done. In case something is not clear enough, please examine the "*FAQ*" section at ***PlayBox*** website: http://www.playbox.tv – the answers of almost all questions that might arise during operation can be found there. Our support team will be at your disposal in case you have specific questions or a non-typical problem.

Do not hesitate to contact us at support@playbox.tv.

NOTE: The features described below may vary from system to system, depending on the hardware used. This user's manual contains a description of all possible features. Please, contact your dealer and describe your needs, so you could be advised properly.

AIRBOX

I. GETTING STARTED

I.1. Quick Start

1. Verify all connections and start the workstation;
2. Make sure that you have suitable content available in the media folders;
3. If you do not have any available, use the sample clips from the ***PlayBox CD***;
4. Launch ***AirBox***;
5. Click the ***Add*** button;
6. Select the files you wish to playout and click the ***Open*** button;
7. Click the ***PLAY*** button;
8. You should now see ***AirBox*** video on your video output.

Congratulations! You have just launched your first ***AirBox*** playout session!

II. USER INTERFACE

The main interface window is divided into several areas:

II.1. Title Bar

This is the topmost horizontal bar of the ***AirBox*** window. It contains abbreviations of all options enabled on the dongle, the ***AirBox*** channel number, and the name of the currently executed playlist file. If the playlist has been changed, but not saved, there is an asterisk (*) after the playlist name.

II.2. Menu Bar

The ***MENU BAR*** is described in detail further in this section (See section III.).

II.3.Multi-purpose zone

The multi-purpose zone is situated to the left of the master counter. It consists of several tabs that allow quick navigation through the most frequently used functionalities in ***AirBox.***
Use the arrows in the upper right corner to scroll the tabs.
TIP (!) To show/hide tabs in this zone, right-click in it and check/un-check the ones you need.

II.3.1.Preview

This tab shows the currently playing video.

The Video window can be moved outside the main window by checking *External video window* from the **View** menu. If you accidentally close the window, you can view it again by checking *Show external video window* in the **View** menu.

Some ***AirBox*** configurations do not provide such video overlay functionality.

In some cases you might want to disable the window since it consumes additional resources from the system. Then you will have to uncheck *Show External Video Window* in the **View** menu.

II.3.2. Counters

This tab contains all counters that can be found in the **View** menu. Their names are written in the left. Right-clicking in the Clip timer or in the Block timer will invoke a context menu to switch it to count-down mode.

Please check the View menu section below for detailed description of the counters.

II.3.3. Current Playlist

This tab contains information and simple controls about the currently loaded playlist.

Name – this is the title of the currently loaded playlist. It is different than its filename. You can change it in the dialog that appears after double-clicking in the string.

TC – this is an offset that will be applied to the time code which is broadcast over the network – see **Settings** menu ➔ General section.

If the ☑ ***Lock playlist*** box is checked, it will prevent you from editing the currently loaded playlist, as well as from loading another playlist. Use it to protect accidental changes of the playlist during playout.

☑***Playlist Loop*** – if checked, when the playback of the last clip in the playlist is complete, playback will continue from the beginning of the playlist again.

☑***Clip Loop*** – if checked, the currently playing clip will continue playing until unchecked. When ***AirBox*** is in stop mode, this check will loop the first clip to be played after resuming the playout (i.e. the last played before pushing the ***Stop*** button).

II.3.4. Playlists

In this tab you can view all playlists that are found in the currently selected playlist folder (displayed in the string). To change the folder, click on the ***Browse*** button to the right of the string.

TIP (!) Double-click in a playlist line to load the relevant playlist in ***AirBox***. Please note that this will interrupt the playback!

II.3.5. Log view

This tab displays a list of all events that have occurred during ***AirBox*** operation.

II.3.6. ShotBox

This tab accommodates the live show clipboard. In it, you can view and operate with the custom command buttons. It duplicates the live show clipboard window that opens from the **View** menu. Please check the ShotBox section for details.

II.4. Status Bar

The status bar is located in the lowest part of the ***AirBox*** window:

Total Length field shows the total playlist duration.
End At field shows the time when the playlist will end (if not looped, of course).

A ***question mark*** **(?)** after *Total Length* and *End At* means, that there are missing files in the playlist and their duration is included in the total duration (i.e. the actual total length of the playlist is smaller and the end-time is earlier than displayed). You can choose whether the duration of missing files should be included or excluded in the total length by checking the relevant box in **Settings ➔ General** ⇨ ***Missing Files*** → ☑*Show duration of missing files*.

IMPORTANT: In case there is a question mark in the *Total Length* and *End At* fields, the displayed total duration and end-time are NOT the real ones because the missing files will be skipped during the playback.

An ***exclamation mark*** **(!)** after *Total Length* and *End At* means that there are missing files in the playlist, but their duration is not calculated in the total duration (i.e. the duration of missing files is regarded as zero duration in the playlist).

TIP (!) You can set ***AirBox*** to notify the presence of missing files in the playlist by blinking the *Total Length* and *End at* cells in red. Besides, an audio alarm can be sounded through the PC sound card. See **Settings** menu description, **General** section for details on how to enable these notifications for Missing files.

Selection displays the cumulated duration of the currently selected items in the playlist.

The forth field of the **Status Bar** shows the hardware module that is used currently for playout. If there is [None], please check whether the appropriate module is selected in **Settings** menu ➔ **Modules** ⇨ ***Output*** tab.

II.5. Playback Control and Counters

- The **Master Counter** shows the elapsed time of the current playout session.

Pressing the *Stop* button resets the counter. The title of the currently playing clip is displayed under the running time code. This is quite useful in case the played row is out of the visible grid range.
(!) TIP: To view the currently playing clip in the beginning of the grid, just click in the **Master counter**. This will "shrink" the playlist and will show only clips after the currently playing one. If you want to view those before it, use the arrow keys on your keyboard.

- The **Clip counter** is situated under the master counter. It can operate in two modes: count-up and count-down mode. Just double-click in it to switch between them!

The playback control buttons are situated under the Clip counter:

- ***Play*** – starts the playback.
- ***Stop*** – terminates the playback.
- ***Pause/Resume*** – temporary interruption and resuming of the playback. Playback resumes from the same point on.
- ***Next*** – will stop the currently playing clip immediately and will switch to the next clip in playlist. This happens by a smooth cut without any sound or visual artifacts.
- ***Return*** is active only after a **Jump** has been executed. Use this button to return to the position before the last **Jump**.
- ***Jump*** – terminates the currently playing clip immediately and starts playing the selected one regardless of its position in the grid.
- ***Cue*** – This button will interrupt the playback and will pause on the first frame of the selected clip. You can activate it also by holding down the

<Ctrl> key and pressing the ***Jump*** button at the same time. Use this for preparing a clip for playback while showing its first frame on the output. Since this is a machine-and-decoder-dependent function, you might have to increase the *Cue Delay* time in the **Settings** dialog box **(Settings➔General⇨*General* → *Cue delay*).

- ***Automation*** – This button allows you to enable/disable the incoming external triggers (GPI input, DTMF tones). When pushed, the incoming commands will be ignored. The button's background becomes red to notify the operator that Automation is OFF.

WARNING! This button will not operate properly if used together with Ignore Zones (**Settings** menu ➔ **General** ⇨ Skip Zones). Please do not use them simultaneously!

- ***Reset*** – resets the hardware driver. If under any circumstances (bad *MPEG* media or bad system setup) playback is distorted so badly that normal ***PLAY*** and ***STOP*** commands cannot help, use this button to reset the hardware decoder.

NOTE: This button is not visible by default! To show it, go to **Settings** menu ➔ **General** ⇨ ***Interface*** tab and un-tick ☑ *Hide reset hardware button.*

WARNING! Pressing the ***Hardware rest*** button will interrupt the playback!

II.6.Playlist Control Buttons

Most of these buttons actually duplicate the commands found in File menu and Edit menu. All buttons provide hints. Here is a description of the playlist control commands:

New playlist (open ***ListBox***);

Open existing playlist;

Save playlist/***Save*** playlist ***as…***

Save playlist ***as Daily***. This button will be greyed-out if you have not specified a daily playlist folder in **Option** menu > **Start Up**.

Add clip at the end of the playlist/***Insert*** a clip above the currently selected line.

Delete the currently selected clip from the playlist.

Clear playlist (remove all lines from the playlist).

Use these buttons to ***move*** the currently selected clip(s) up (before the previous clip) or down (after the next clip) the playlist even during playback.

NOTE: You cannot move a clip above the currently playing one.

Reset playlist position. If the current playlist has been started and then stopped, the already played clips are colored in grey and their order cannot be changed. Moreover, next time you hit the ***PLAY*** button, playback will start from the first black (not played yet) clip. If you hit **#**, the playlist will be "reset" and next time you hit ***PLAY***, the playback will start from the very beginning of the playlist. Simply put, it is a kind of "playlist rewinding".

Randomize selection – press it to re-arrange the currently selected clips in a random manner.

This button will display the ***Properties*** of the currently selected line.

While a clip is selected in the playlist grid below, press this button to open the ***Clip Trimmer***.

Undo up to 6 latest actions.

II.7. The Volume Slider

Probably the less noticeable part of the user interface, the *Volume slider* is situated between the multi-purpose zone and the playback control buttons. It is used to compensate different sound volume in separate clips. You can control it with the [+] and [–] numeric keys on your keyboard, or just by dragging the slider. Check the box under it to mute the output sound.

II.8. The Playlist Grid

This is the main part of the interface dedicated to the playlist (play order) visualization.

II.8.1. The Grid Columns

Start Time – this column contains each clip's starting time. During **Stop** mode**,** it shows the current time for the clip that will be played first when the ***Play*** button is pressed. The time refreshes every 2 seconds. The following clips hold positive times calculated according to the current time and the duration of the preceding clips. During **Play** mode, this column shows the actual starting time for each clip. If there has been a ***Jump*** command or a clip has been trimmed during **Play** mode, the starting times of the following clips will be recalculated accordingly.

If for any reason a file is removed or renamed after the playlist is loaded, it will be considered missing and hence - colored in red. ***AirBox*** will skip it and will jump to the next available clip. The **Start Time** column will be recalculated accordingly.

Duration - shows the actual duration of each clip. Naturally, if a clip has been trimmed, its actual duration will be reduced. The duration of the part to be shown will be displayed in the playlist and will be used for calculation of the starting times of all following clips.

Type - shows the type (*such as MPEG*) of the clip – this is quite useful to determine the major type of compression, since many decoders do not allow different compression types to co-exist in the same playlist.

Category - contains category information fed by ***DataBox***. The background color is the same as the actual category color. You can define another field color for clip description in ***AirBox***, using ***DataBox*** (**Options**⇨***Default values***→*Color to AirBox)*. The C*ategory* and its color can also be defined manually in ***ListBox*** or in ***AirBox***. You can fill-in the entire clip rows with their Category colors – in ***AirBox*** choose **Settings➔ General** ⇨ ***Interface*** → ☑*Color entire row by category*.

Title - shows the clip's title or filename.

Location – shows the file location (full path).

Star - contains data fed by ***DataBox***, describing the talents in the clip.

Notes - contains data from fields, specified in ***DataBox*** (**Options** ⇨ ***General*** → *Fields to AirBox Notes*) or in ***ListBox***.

(!) TIP You can change the columns' order by *drag-n-dropping* them.

(!) TIP A double-click in the first column that contains the items' numbers will invoke the clip properties dialog. Double-clicking in any other column will open the ***Clip Trimmer*** (if it is enabled in **Settings** menu➔ **General** (see the description further in this manual).

II.8.2. Color coding

The color-coding of the playlist's rows provides additional information to the user:

- **Pink row** – outlines the currently playing clip. It is visible in ***PLAY*** and ***PAUSE*** modes only.
- **Yellow row** – it is visible only while switching between clips. It shows which clip will be played next. In that moment, the yellow clip is being actually fed into the decoder circuit. This happens during the last couple of seconds before the end of the previous clip. The clip cannot be moved, trimmed or deleted anymore. Just for comparison, competitive playout solutions tend to permanently lock the clip after the currently playing one, which reduces on-air flexibility and your last-minute decision freedom.

- **Blue row** indicates the currently selected clip – all actions, i.e. ***Jump***, ***Move Up/Down*** will be applied to it.
- **Red row** highlights those files in the playlist that are missing/invalid (not supported from the currently installed hardware). The playback skips such files and plays the next available clip.
  If the file is missing, you can set the time interval for automatic check for missing files (**Settings➔General⇨*Missing Files*→**Check Missing files every […] sec*).*
- **Light cyan row** outlines the playlist events when selected.

NOTE: You can change these colors to fit your personal preferences in **Settings➔Colors⇨*Playlist*** tab.

II.8.3. Drag-n-Drop!

One of the main features of the grid is the *drag-n-drop* functionality. It allows dragging clips within the playlist and from one grid to another (from ***DataBox/ListBox*** to ***AirBox*** or from any folder to ***AirBox***). If <Ctrl> is being held while dragging a clip in the playlist, the executed operation will be **Copy**. By default, each internal (in the grid) dragging means **Move** and dragging between two windows (similar to ***Windows Explorer***) is **Copy**. Clips that have already been played-back are grey and cannot be moved, but can be copied.

Pointing with the mouse cursor at a playlist's row displays a hint containing the clip's file name and IN /OUT timecode values.

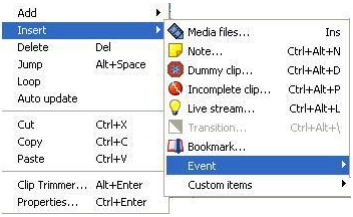
Double-click over a clip invokes the ***Clip Trimmer*** (if it is enabled from **Settings ➔ General ⇨ *General*** → ☑*Use clip trimmer*). If you trim a clip in the playlist, the change will not be permanent, but valid ONLY for this playlist. If you add the same clip to another playlist, it will appear un-trimmed there.

A detailed description of ***Clip Trimmer*** can be found further in this user's manual.

If the use of ***Clip Trimmer*** is not enabled, the clip's properties dialog will open.

II.8.4. Right-click

Right-mouse click over a row invokes a pop-up menu of playlist and events commands:



- ***Add*** – activates a drop-down list for appending various items to the end of the playlist. See their detailed description in the Edit menu section further in this manual.
- ***Insert*** – opens a drop-down list for inserting various items before the currently selected item in the playlist. The Add and Insert drop-down lists are identical.
- ***Delete –*** deletes the selected playlist row(s); a dialog asks confirmation before the deletion.
- ***Jump –*** click it to interrupt the currently playing clip and jump to the currently selected (highlighted) item in the playlist.
- ***Loop*** – marks the selected clip for repeating until this option is cancelled. To remove the check, just right-click in the clip and choose *Loop* again.

NOTE: This action differs from the *Clip Loop* button **#**, which loops the currently *playing* clip (not the currently *selected* one).

- ***Auto update*** – use it to include the currently selected clip(s) in the automatic file duration checking. It will update the duration of your clips if the files associated with them have been, or will be, changed.

NOTE: You have to enable this option first in **Settings ➔ General ⇨ *General*** ➔ ☑*Auto update duration of marked files*. The file checking interval should also be set there.

- ***Clip Trimmer*** – opens the ***Clip Trimmer*** application (if it is enabled in **Settings ➔ General ⇨ *General*** ➔ ☑*Use Clip Trimmer*. Otherwise, the *Clip Properties* dialog will open). Find detailed in formation about the ***Clip Trimmer*** in the section of the same name at the end of this manual.

II.9. Trimmer Server

The trimmer server starts at ***AirBox*** start-up. It was developed with two major purposes in mind:

1. To enable working with the main ***AirBox*** interface while the Clip Trimmer is open.
2. To eliminate the possibility of interfering with the on-air playback process.

NOTE: You can open only one Trimmer per instance!

III. MENU BAR

III.1. File Menu

The File menu contains all playlist file-related commands:

III.1.1. New Playlist

This command evokes the ListBox module – it opens a new blank playlist for editing.

III.1.2. Load playlist

Loads an existing playlist file (**.ply*). You can also open a *Dalet Automation XML* playlists (**.xml*).
WARNING! Loading a playlist on the currently playing ***AirBox*** window will stop the playback. A warning dialog box will appear each time you try to do so.

III.1.3. Append playlist

This item appends another playlist to the end of the currently loaded playlist.

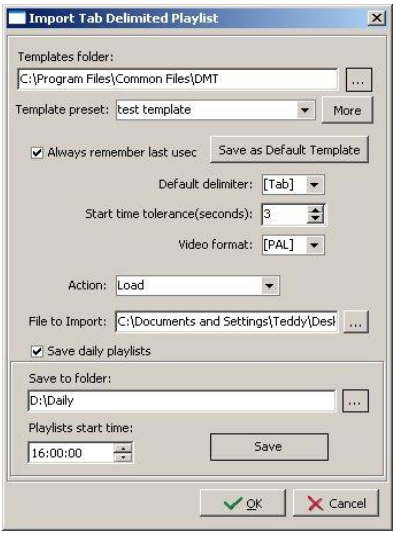
III.1.4. Insert playlist

This menu item inserts another playlist in the currently loaded playlist, above the currently selected row.

III.1.5. Import playlist

Using this feature, you can import a third-party playlists in ***AirBox***.

III.1.5.1. Import tab-delimited file



This menu item allows importing all kinds of tab-delimited text files. All you have to do is "tell" ***AirBox*** what the different columns of the imported file contain. The dialog to the right appears at selecting this menu item. The ***OK*** button

will not be active until you fill in all the strings.

The Tab delimited importer operates using playlist structure templates previously created by you.

Use the browse button to the right of the ***Templates folder*** string to specify the location for saving your templates.

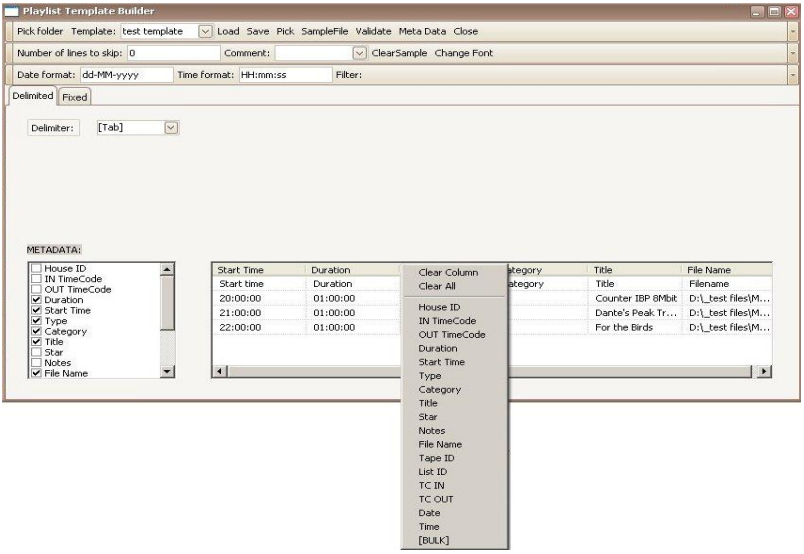
The ***Template preset*** drop-down list contains all templates saved in this folder. When opening it for the first time, there will be no templates to load. You will have to create them first (see next page).

The ***Start time tolerance*** spin box is designated for use when the playlist to import contains fixed start time entries. It means that if there are some conflicting start times that are out of the allowable tolerance, no fixed start time events will be created during the playlist import. This value is valid both for earlier and later start tolerances. I.e. if you enter 10 seconds here, it will mean ± 10 seconds.

In the ***Action*** drop down list, choose whether to load, insert or append playlist.

If you check the ☑***Save daily playlists*** box, the dialog will become extended for specifying a folder and *Playlists start time*.

Push the ***More*** button to **create/modify your playlist template**. The following dialog opens:



In the ***Template Field***, enter the template name. Use the ***Sample File*** button to select an example of the text file that will be imported with this template.

In the ***Number of lines to be skipped*** cell, enter the relevant figure (for example-1). The skipped lines will be colored in red.

Comment – fill in a symbol that might appear in the beginning of a row to be skipped from the playlist.

Delimiter – how are separated the columns in the file to be imported (tabs, semi-colons, etc.).

Go to the upper most cell of each column, click once in it and "tell" the ***Template Builder*** what does it contain (select from the drop-down list). Use [BULK] for the fields to be skipped (such as duration, etc.) to comply with the ***AirBox*** playlist structure. When you're ready, press ***Save***.

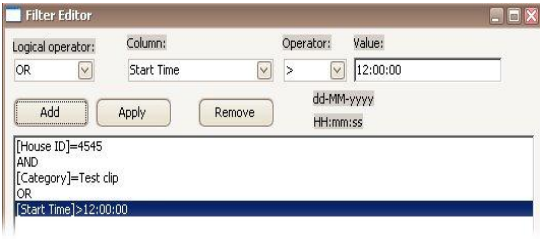
Pick – press it to use the current template for the file you are going to import.

If you already have some templates and you select one of them from the drop-down list, push the ***Load*** button to load it (its settings will be displayed in the grid).

Validation – press it if you'd like to be sure that your template is compatible with the file you're going to import (a browse dialog will open for you to pint to that file).

If you need to use another sample file, push the ***Clear Sample*** button and then load the new sample. If you do not clear the old sample first, the new file will be appended to the end of the old one.

The third uppermost row of this dialog is dedicated to the daily playlists. There you can see the date and time format for such lists represented. In case you have to import playlists, longer than 12 hours, use the ***Filter*** button to split them. Pressing it, the following dialog opens:



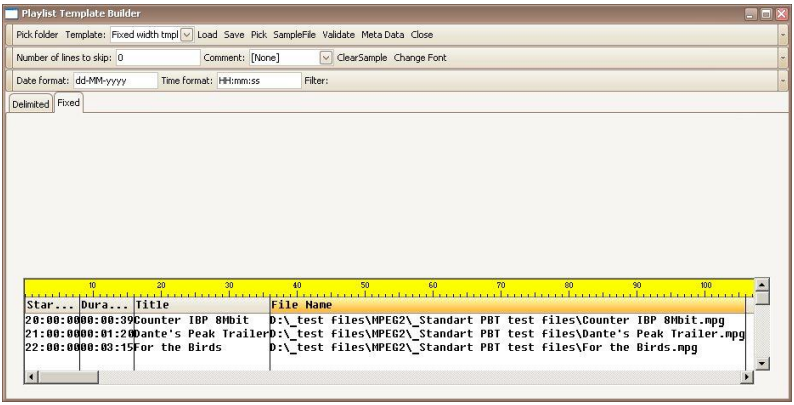
In it, you can indicate some values of the clip, which will be used as a split point (for example House ID, In and Out TC, Category, Title, etc.). Use the ***Add*** button to add these values as filtering conditions for splitting the playlists and respectively, the ***Apply*** and ***Remove*** buttons to confirm the usage of the created conditions or to remove them.

Back in the first dialog, select a template preset from the drop-down list (now you should have at least one, built in the Template builder). Press the ***browse*** button to point to the *File to Import* and click ***OK***.

You can set the currently selected *Templates folder* and *Template preset* as default by pressing the ***Save as Default Template*** button.

III.1.5.2. Import of playlists with fixed-width data fields

In addition to the existing schedule import engine for tab-delimited or CSV (Comma Separated Values) files, a new schedule type will be available for import – flat text with fixed-width data fields. For importing such playlists, go to **File Menu ➔ Import playlist…**. Then click the ***More*** button and choose the ***Fixed*** tab, situated at the fourth uppermost horizontal bar to open the dialog below:



Here you set/modify a template, which tells ***AirBox*** how to interpret the fixed width text file, which contains the playlist. In the ***Template*** drop-down list, type the template name. Click the ***Sample File*** button to select an example of the text file that will be imported with this template. This text file will be loaded in the data preview field, which is situated at the lower part of the ***Playlist Template Builder*** dialog. The actual columns in this sample text are not separated. Each of them contains a fixed number of symbols. To define the columns' width, you have to signify column breaks. For facility's sake, there is a symbol-related ruler.

To create a break line, left click at the desired position.

To move a break line, click and drag it.

To delete a break line, double-click on the line.

To increase and decrease the width of the created grid, use the mouse scroll.

While sliding the mouse within the data preview window, near the pointer you can see an indicator of the symbols passed from the start of the ruler. For example:

.

After separating the columns, left click within the bar under the ruler to specify what kind of data the relevant column is containing (for example Title, Filename, Duration, etc.). Click the ***Save*** button to save the template and the ***Pick*** button to load it.

III.1.6. Save playlist

This command saves the current playlist file. The saved file contains the names of all clips arranged by their running numbers in the grid, as well as some additional attributes like playlist name, loop status, etc.

III.1.7. Save as

This command saves the current playlist to a file. Except for our generic playlist format (**.ply*), now you can save your playlists to XML files as well. **NOTE:** The XML playlist has generic ***PlayBox*** format. Therefore, you cannot load any XML file as a playlist!

III.1.8. Save daily playlist

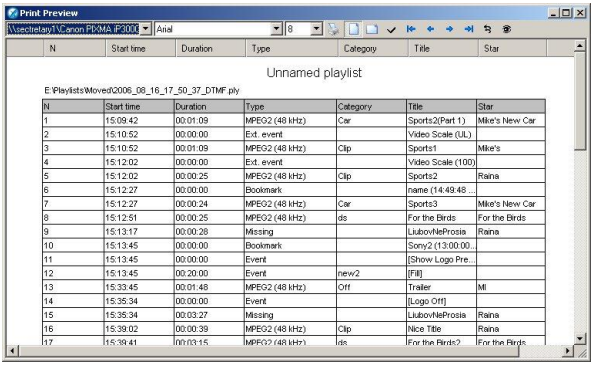
This menu item saves the current playlist in compliance with the naming requirements for daily playlists. This saving option is not active if you have not specified a *Daily playlist folder* (see **Settings** menu ➔**Start Up…** ➔ *Start Up playlist*).

WARNING! When using fixed time events in daily playlists, the playlist should start and end within the same calendar day (i.e. the daily playlist should not go beyond midnight). Otherwise, we cannot guarantee the proper operation of the fixed time logics and the daily playlist logics.

WARNING! We strongly DO NOT recommend using stop events and live streams without duration in daily playlists. The reason is that in case of accidental shut down, there is no way

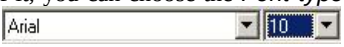
to calculate the duration of these items and thus to determine the insertion point. So ***AirBox*** will not be able to catch up with the schedule. You can still use them in daily playlist, but on your own risk.

III.1.9. Print Playlist



N	Start time	Duration	Type	Category	Title	Star
1	15:09:42	00:01:09	MPEG2 (48 kHz)	Car	Sports2(Part 1)	Mike's New Car
2	15:10:52	00:00:00	Ext. event		Video Scale (UL)	
3	15:10:52	00:01:09	MPEG2 (48 kHz)	Clip	Sports1	Mike's
4	15:12:02	00:00:00	Ext. event		Video Scale (100)	
5	15:12:02	00:00:25	MPEG2 (48 kHz)	Clip	Sports2	Raina
6	15:12:27	00:00:00	Bookmark		name (14:49:48 ...	
7	15:12:27	00:00:24	MPEG2 (48 kHz)	Car	Sports3	Mike's New Car
8	15:12:51	00:00:25	MPEG2 (48 kHz)	ds	For the Birds	For the Birds
9	15:13:17	00:00:28	Missing		LiubovNeProsia	Raina
10	15:13:45	00:00:00	Bookmark		Sony2 (13:00:00 ...	
11	15:13:45	00:00:00	Event		[Show Logo Pre...	
12	15:13:45	00:20:00	Event	new2	[Fill]	
13	15:33:45	00:01:48	MPEG2 (48 kHz)	Off	Trailer	MI
14	15:35:34	00:00:00	Event		[Logo Off]	
15	15:35:34	00:03:27	Missing		LiubovNeProsia	Raina
16	15:39:02	00:00:39	MPEG2 (48 kHz)	Clip	Nice Title	Raina
17	15:39:41	00:03:15	MPEG2 (48 kHz)	ds	For the Birds2	For the Birds

Both ***AirBox*** and ***ListBox*** provide the option of printing the current playlist. After choosing the **Print** command, a Print-Preview window opens and displays the current playlist**.** The columns and their order of appearance are the same, as in the grid. In the print preview dialog, you can change the columns' size and adjust the following settings:

- The drop-down list in the left contains all currently connected printers. You can choose which printer to use from here.
- To the right of it, you can choose the *Font type* and *Font size* for the printed document 

- ***Print*** button – press this button to start printing the playlist.
- Page *Orientation buttons* – you can choose between Portrait or Landscape .
- Button ✓***Selection*** – push it to print only the rows that have been previously selected in the grid.
- The *Name* of the printer (it may be a local or network- connected printer).
- ***Reset Columns*** button – resets the columns width to developer-defined values.
- ***Restore Settings*** button – press it to discard all recent changes.
- ***First page*** - go to the first page / ***Last page*** - go to the last page

- - Go to previous page / - Go to next page
- ***Refresh Table*** – press it to update the view.
- ***Auto size Columns*** button – press it to fit the columns' width to their content.

III.1.10. Export playlist as XLS

Use this option to export your playlists to coma-separated value (CSV) *.xls files.

III.1.11. Export Logs in XLS files

If you need to convert the tab-delimited log files to XLS format, click in this menu item. A browse dialog will open for you to select which log to export – just select it and click ***Open***. The resulting **.xls* file will be saved to the same directory.

III.1.12. Export capture list

If there are missing files into the playlist, invoking this command will create a list of missing clips for capturing in *.cap file. Exported *.cap file is CaptureBox compatible.

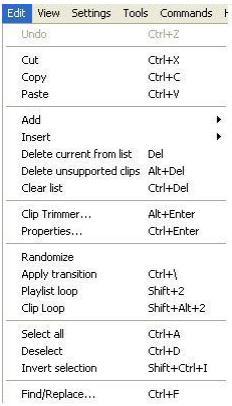
III.1.13. Reload graphic Rules

The graphic rules are saved in a **.dat* file in the ***AirBox*** program directory. The graphic rules of the first ***AirBox*** instance (channel) are saved in the GraphRules1.dat file. The rules for the second ***AirBox*** instance are saved in GraphRules2.dat file and so on. This **.dat* file is loaded at ***AirBox*** startup. If you want to change the graphic rules without stopping the program, overwrite the relevant Graphrules#.dat file first. Then, click in **File** menu ➔ **Reload graphic rules.**

III.1.14. Rescan file duration

Use this command to rescan the durations of all files in the playlist.

III.2. Edit Menu



This menu contains all playlist- and clip-editing commands available in ***AirBox***. You can find the most important of them also in the drop-down menu that appears on right-clicking in the playlist grid.

III.2.1. Undo

Use it to cancel up to five recent actions.

III.2.2. Cut

Removes the selected object(s) and keeps it in the buffer-memory.

III.2.3. Copy

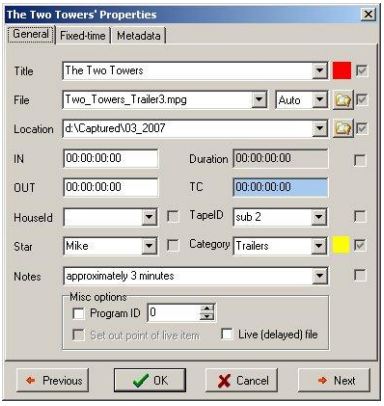
Saves a copy of the selected object(s).

III.2.4. Paste

Pastes the buffer content.

III.2.5. Add

- **Media Files** – Adds existing clip(s) in the playlist. Browse in the dialog opening to point which clip(s) you'd like to append or insert.
- **Note** - Adds a comment line in the playlist.
- **Dummy Clip** - The *Dummy Clip* invokes a special dialog box for adding or inserting "virtual" clips in the playlist. You can use this option when you want to build your playlist prior to receiving a clip whose properties are already known. ***AirBox*** will mark it as *Missing*, but when it becomes available, it could be used right away.



In the ***General*** tab, fill-in the *Title*, *File* name and *Location* of the clip. The *IN* and *OUT* points, the *Duration*, and the *Timecode* are also editable. If you want to, write the *Category*, *Star* and *Notes*. You can make the module remember each last string entry by checking the box next to its row. If you want to, choose the *File type* or leave it as *Auto*.

Use the ***Fixed-time*** tab if you would like the dummy clip to start at a specific point in time. Check the Properties dialog description for details on fixed-time settings.

Add some more info about the file in the ***Metadata*** tab. You can use this info later, in the graphic rules functionality. Check the Properties dialog description for details on Metadata description.

- **Incomplete Clip** – Usually this clip is still being captured at the moment of playback. You create such an *Incomplete clip* entry in the playlist and check *Live (delayed) file*. At a given time you start capturing this clip to the specified location and once there are a few seconds of it available on the storage, ***AirBox*** marks it as valid clip and it can be played immediately. Thus capturing and playback proceed simultaneously. If you want to predefine the file length despite its real length, just check ☑*Set out point of live item*. With this setting the file will be played to the exact time you had specified, even if it is longer.
NOTE: The TDIR option is hardware-dependent. See also Using TDIR option in the Capture Mode section below.

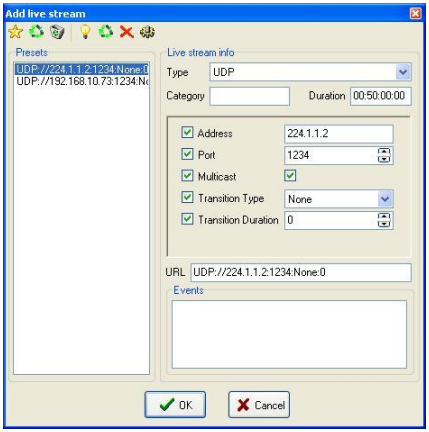
- **Live Stream** – Live event could be either an *UDP* stream, or a *live video* stream. The live video stream comes from a video source, defined in **Live Input** from ***Settings menu->Output settings*** window.

Into *Live stream info* area, select the *Stream type* from the available one; set the *Duration* of the live stream connection and enter *Category* for the event (this is a free text custom category, not mandatory).

UDP stream

Here you have to specify the relevant information about the stream.

- Enter the **IP** address in the *Address* field and the *Port* number in the relevant field (you will need the ports to distinguish between numerous instances coming from the same IP address);
- ☑ Check the ***Multicast*** box if your server is set to multicasting;
- If you will use some transition in the beginning of the event, select the ***Transition Type*** and ***Transition Duration***.



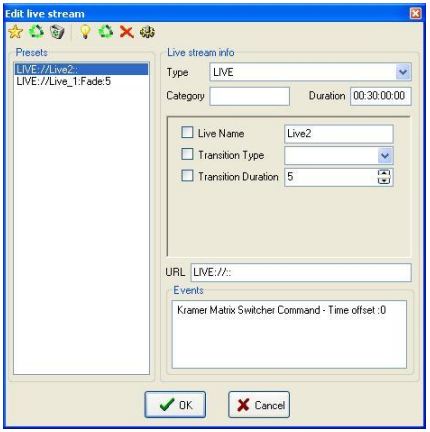
Live video stream

Here you have to specify the relevant information about the live source.

- ***Live name*** - the name of the Live source, as it is entered into ***Settings->Output->Live Input*** settings window.

Important: The name is case sensitive.

- If you will use some transition in the beginning of the event, select the ***Transition Type*** and ***Transition Duration***.



The ***URL*** *field (*the command ***for AirBox)*** is generated automatically as you type in the above fields (for ***UDP*** or for ***Live*** stream). You could also enter a command directly in the *URL* field.

If you use streams (***UDP or Live***) that come from the same sources, you could create some presets. Thus, the next time you need the stream, you can just insert the relevant preset instead of setting up the whole information again

When you are ready with settings for press the ***Add current as preset*** button – this will save the current configuration as a preset for later use. You can edit your presets later: Select the one you'd like to edit from the *Presets* list; correct it at your will and then press the ***Update*** button to the right of the ***Star*** button.
To delete a preset, select it in the *Presets* list and press the ***Delete Preset*** button.

Now, you can add some events (such as Switcher events, ***TitleBox*** Net control, Video Resizing, and Logo) in your live stream presets. Press the ***Add new event*** button and select the event you need from the drop-down list. The relevant dialog will open to configure the event's commands. All events associated with the current live stream will be listed in the *Events* field.

You can edit these events later: Select the event you'd like to change from the *Events* list and press the ***Edit selected event*** button. A dialog will open for you to apply the changes at your will.

To delete an event, select it in the Events list and press the ***Delete event*** button above.

If you need to do some fine tuning of some of the events, prior to inserting them in the playlist, press the ***Toggle auto-config*** button while an event is selected. Thus, each time you insert this preset in the playlist, you will be prompted to make the final touches of this event.

• **Bookmark** – this is a special virtual item that can be used as a target point for incoming triggers (GPI input or DTMF input), or alone. It will cause ***AirBox*** **Jump** to the following item in the playlist according to several additional conditions as described below.

The bookmark properties dialog contains a *Name* string and a ***Time zone*** area. When inserting bookmarks, you must enter a *Name*, and optionally – a *Time zone*, depending on your needs.

The time zone represents a validity period of the relevant bookmark. It can act as a target for GPI or DTMF input (when [Jump to bookmark in time range] is selected as a command in the relevant setup dialog).

When ☑***Force jump on time*** is checked, the bookmark will act as a fixed time event and ***AirBox*** will jump to it when its time is through. This can happen in two cases: if the expected trigger does not arrive until the time specified in the ***To*** string or when you are using bookmarks alone in the playlist.

For example, a jump operation will be executed to the bookmark in the screenshot at 16:36:32 o'clock if the expected trigger has not arrived by that time.

WARNING! Please note that the *To* string will force ***AirBox*** to jump and execute the following items in the playlist. This might interrupt the playback order, so be careful when checking ☑*Force jump on time* in bookmarks!

There are several possible scenarios when using bookmarks and **DTMF/GPI** triggers combined:

When the **bookmark Name** is used as a reference, i.e. the DTMF/GPI command is Jump to bookmark:

– If there is a Time range specified in the bookmark's properties and the trigger comes within this time range – ***AirBox*** will jump to this bookmark.

– If there is a Time range specified in the bookmark's properties and the trigger comes outside this time range – ***AirBox*** will ignore the command.

– If there is no Time range specified in the bookmark's properties, ***AirBox*** will jump to that bookmark unconditionally at receiving the trigger tone/pulse.

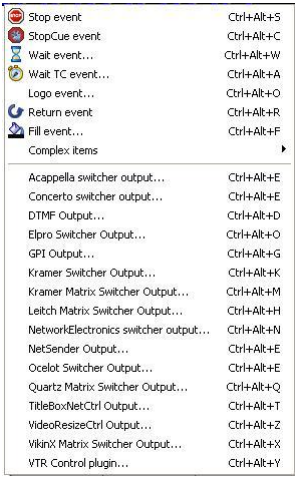
When the **Time zone** is used as a reference, i.e. the DTMF/GPI command is **Jump to bookmark in time range**:

– If the trigger comes within the time range – ***AirBox*** will jump to this bookmark

– If the trigger comes outside the time range – ***AirBox*** will jump to the nearest following bookmark according to the system clock.

WARNING! Please make sure to set the Time zones correctly, because at late arrival of the DTMF tone, ***AirBox*** will jump to the next bookmark, thus possibly skipping some of the items that are situated between the two bookmarks as in the following example:
If a bookmark's *Time zone* is set From 15:36:32 To 16:36:32 and the DTMF tone does not arrive, ***AirBox*** could jump to the following item in the playlist at 16:36:32. If the DTMF tone arrives at 17:00:00, ***AirBox*** will jump to the next bookmark in the playlist that has a later Time zone, thus skipping some of the clips that are between the two bookmarks.

WARNING! DO NOT use fixed time events within a bookmark's time range!



- **Event** - there are two types of events in relation to ***AirBox***: internal and external. They are separated by a thin line – above are listed the internal events, and below are the external ones.

The supported *Internal Events* are as follows:

- ***Stop event*** – Inserting such an event in the playlist will stop the playback automatically at reaching this point in the playlist. This function is useful for news and other interactive sessions.

- ***Stop Cue event –*** Automatically stops the playback at reaching this point of the playlist and shows the first frame of the following clip.

- ***Wait event –*** stops the playback temporary. A dialog box appears to specify the type of "waiting":
Wait means that playback will stop and standby for a certain period (hh:mm:ss). For example: 00:01:00 – the playback will wait for 1 minute;
Wait Until means that playback will stop and automatically resume at a definite time (hh:mm:ss). For example: 14:00:00 – the playback will start at 14:00:00 o'clock.

- ***Wait TC Event*** – stops the playback automatically and resumes it at reaching the specified time code (e.g. coming from an external timecode generator). The message to the right will be displayed on the ***AirBox*** window and the Master counter will continue running. See the LTC reader description in the **Settings** menu ➔ **Timecode** section further in this chapter.

- ***Logo On*** – Starts displaying the logo, set in the preceding *Logo Preset event*. If there is no preceding *Logo Preset event* the first logo preset from the list (in **Settings➔Logo…**→*Logo Presets*), will be displayed.

- ***Logo Off*** – Stops displaying the logo.

- ***Logo preset*** - Sets a logo preset, which will be displayed after initiating the *Logo On* event. The preset number corresponds to its number in the preset list in **Settings➔Logo…**→*Logo Presets*.
If you check the ☑*Activate now* box in the event dialog box, the logo will appear immediately. You can also activate the logo before or after the beginning of the following clip by setting an offset to it.

- ***Return event –*** This event will return the playback at the position before a previously executed Jump. For example, if you have a movie in your playlist and at a certain time you decide to jump to a block of commercials somewhere in the playlist, and then go back to the same position in the movie, insert a Return event after the commercials you'd like to play. Thus, the movie playback will resume after the end of the commercial break from the point before the jump.

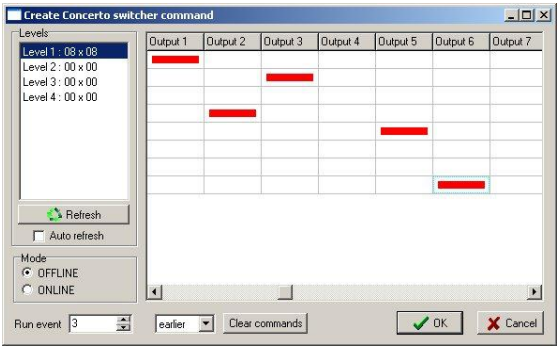
- ***Fill event –*** opens the *Fill event properties* dialog. For more information, see section **Settings** menu ➔ **Auto-fill…** further in this chapter.

- ***Complex Items –*** opens the *Custom Complex Event* dialog. A list of all previously defined complex events is displayed for the sake of convenience. For more information, see section **Settings** menu ➔ **Complex items…** further in this chapter.

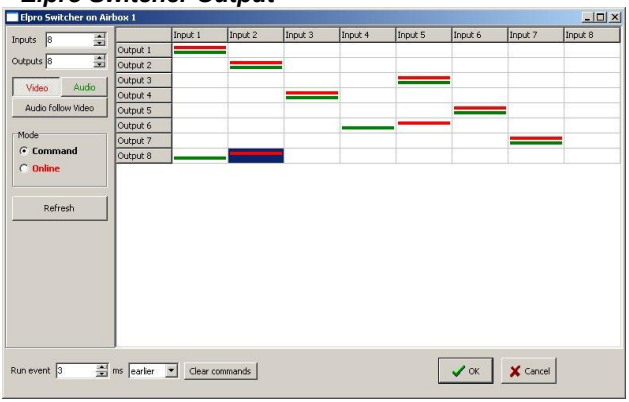
NOTE: The *External Events* are part of the ***AirBox PRO*** option. The following section contains a description of these events:

- ***Acappella Switcher Output*** is an event for controlling an external video/audio router. Depending on the switcher model, the currently available inputs/outputs will be displayed in a matrix grid. In it, you can configure the command you need. Press ***OK*** when ready.

- ***Concerto Switcher Output*** is an event, which gives you the ability to control Concerto series of routing switchers. When you choose it, you will be able to see the dialog to the right. Double-click on the relevant *Level* to specify the number of inputs and outputs in it. After that, specify the commands in the grid (it will reflect your ***Configure*** settings). If you choose the ***Command*** mode, you'll have to press OK to insert the event in the playlist. In ***Online*** mode, you can control the matrix switcher in real time. You can also set an event offset, if necessary.



- ***Elpro Switcher Output***



This feature activates the ***Elpro Switcher output***. When you choose it, the above dialog appears. The first thing you have to do is to configure the number of inputs and outputs of the switcher. Then you have to specify the desired input/output configuration. You can switch the **Video** and **Audio** separately or together. The user can work using two modes: *Command* and *Online*. In *Online* mode Inputs and Outputs can be switched in real time just by pressing the desired *In/Out* combination field in the grid. In *Command* mode you have to insert the desired *In/Out* configuration and add or insert it as event in the playlist.

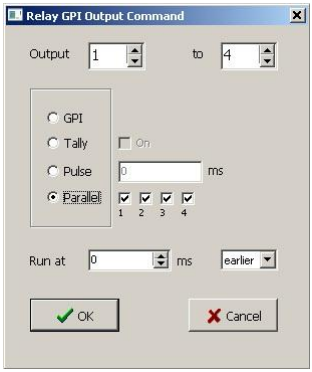
- ***GPI Output*** – Inserts a line in the playlist to activate the *GPI Output*. A dialog box appears to define the output *GPI* commands. You can have up to two commands on each COM port: GPI 1 means DTR tone (pulse on pin 4 and 5), GPI 2 means RTS tone (pulse on pin 7 and 5).

You can select the *COM*-port from the available *COM*-ports listed in the main window area. To configure them, go to **Settings ➔ Modules** ⇨ ***Remote Control*** tab. Select the GPI Output and press the ***Configure*** button.

The time for execution of a GPI event is defined through the surrounding items in the playlist. Therefore, you could correlate an event offset using the end of the previous clip ("earlier" execution) or the beginning of the following one ("later" execution). Just fill the number of frames in the ***Run event*** field and choose [earlier] or [later] in the next field.

- **Relay GPI Switch output**

This event, inserts a line in the playlist to activate the *GPI Relay Output*. The following dialog box appears:

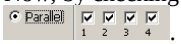


Into **Output** field select the number of GPI output, on which the signal will be sent.

Then select what kind of signal to send, by marking the respective radio-button – **GPI, Tally, Pulse, Parallel.**

When select **Tally,** the next **On** check-box becomes available . Check it for set Tally ON.

If select **Pulse,** a single pulse will be send to the output. Enter the length of the pulse in milliseconds in the next field .

If select **Parallel,** you can send the GPI signal parallel to several outputs. In this case, you have to select which are these outputs. Enter into **Output** field the number of the first output and into **To** field the number of the last output, which will be parallel. . Then, next to the **Parallel** radio-button appear small check-boxes, which represent the outputs. Now, by checking the respective check-box, you can select the outputs.  .

Into **Run At** field enter how many milliseconds *earlier* or *later* to execute this event.

- **DTMF output**

This event, inserts a line in the playlist to activate the *DTMF signal*. The following dialog box appears:

Into DTMF Preset field, choose a preset as it is defined in Modules->Remote Control-DTMF output section.

Into **TimeOffset** field enter how many milliseconds *earlier* or *later* to execute this event

- **Universal Matrix Plugin**

This event activates Universal Matrix Controller (UMC). More information about UMC, you can read in section ***Universal Matrix Controller*** further in that manual.

- ***Kramer Switcher Output*** –Activates a *Kramer Switch Output*. A dialog box appears to define the Kramer Switcher commands:

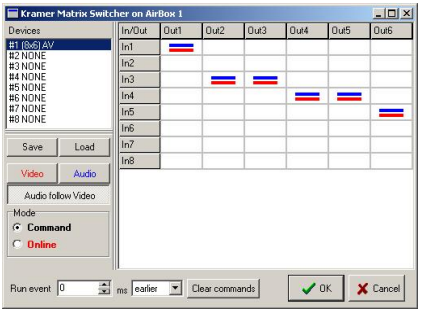
Machine – select the number of the device connected to the *COM port (RS-232)*. Up to 8 devices can be connected.

Input – select the number of the desired switcher input.

Run event – fill-in the number of frames for "earlier" or "later" command to the switcher (see the *GPI* section).

NOTE: This switcher control plug-in works with the old control protocol. Most of the latest Kramer switchers are Protocol 2000-compliant, so you should use the "Kramer Matrix Switcher Control" module, even if your switcher is not a matrix switcher.

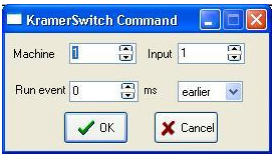
IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable.



- ***Kramer Matrix Switcher Output*** –for all Kramer switchers that use Protocol 2000.

This event activates the *Kramer Matrix Switcher Output*. A dialog box appears to define the Kramer Matrix Switcher commands. There are two main modes: *Command* and *Online*.

In *Online* mode the user can switch Inputs/Outputs in real time just by pressing the desired *In/Out* combination field in the grid (the right part of window) area.

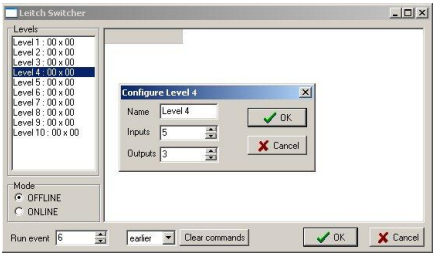


In *Command* mode the user selects the desired combination for the Matrix and after pressing *OK* the event is added to ***AirBox*** playlist.

The attached devices are automatically detected, but you can add more manually by double clicking a row in the list of devices (#1 NONE; #2 NONE; etc.).

Video and **Audio** can be switched separately or together. The Device list can be **Saved** and **Loaded**. You can also set time offset in milliseconds.

- ***Leitch Matrix Switcher Output*** is another optional plug-in for ***AirBox***. When you choose to insert a *Leitch Matrix event*, the dialog to the right is displayed. Double-click on the relevant level to configure it (i.e. to specify the number of inputs and outputs in it) and click *OK*. Then specify the commands in the grid (it will reflect your *Configure* settings). If you choose the *Command* mode, you'll have to press OK to insert the event in the playlist. In *Online* mode, you can control the matrix switcher in real time. You can also set an event offset, if necessary.



- ***Inday Switcher Output*** is the latest development for switcher control in ***AirBox***. After enabling it in **Settings ➔ Modules ⇨*Remote control*** tab, press ***Configure*** to specify the COM port to which the device is connected.

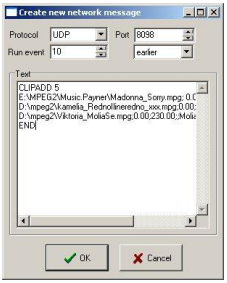
Later, when inserting the event in the playlist, specify the Input to switch.

Use the ***Switch now*** button if you need to execute the command immediately.

- ***Net Sender Output*** event will send any text message via UDP.

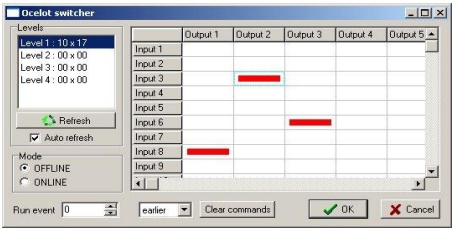
Thus, you could control IP-enabled third-party devices. All you have to do is specify the port to which the message will be broadcast and type in the text. ***AirBox*** will send the message on the specified port when it reaches the event line in the playlist, observing the offset (if any).

NOTE: The maximum size per message is 512K.



- ***Ocelot Matrix Switcher Output*** – Activates the *Ocelot Switcher* output dialog where you can define the switcher's commands.

You can schedule the device control by adding/inserting events into the ***AirBox*** playlist (the so called *Offline* mode) or control it interactively (in *Online* mode).



In the *Levels* field are listed the available matrix levels which refer to digital video, analog audio and digital audio. Right-clicking over a level invokes a pop-up menu that enables grouping it with another level or ungrouping the currently selected pairs, or resetting all of them. Grouping is convenient for simultaneous switching of all levels in a group.

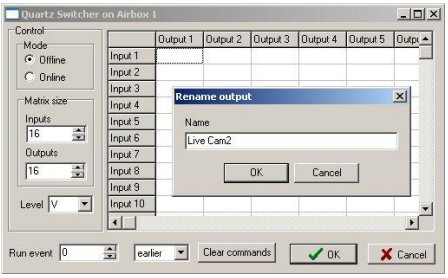
Double-click over a level will open a dialog where you can define its name, and the inputs' and outputs' numbers. Note that you can not do this in *Online* mode. While in this mode the switcher deals only with the existing levels.

To define inputs and outputs of the selected level, mark and unmark the cross cells in the grid by single mouse-clicking.

Double-clicking on a column/row header invokes a dialog for changing its label. If you want to delete all current commands (at all levels) use the ***Clear commands*** button. Note that it works only in *Offline* mode.

If ***Auto refresh*** is checked, the grid will automatically reflect the matrix status each time some of the switcher's Input/Output buttons is pressed. If not checked, you can update this information manually by pressing the ***Refresh*** button.

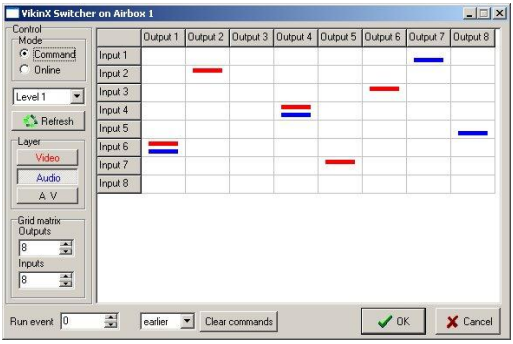
When in ***Offline*** mode, you can specify the delay/precession of the event in milliseconds. The corresponding strings are situated in the lower left part of the window.



- Quartz matrix switcher Output As in all other switcher events' properties, you can rename the Inputs and Outputs in the interface for easier navigation. Just double-click in the Input/Output you would like to rename and type its new name.

- VikinX Matrix Switcher Output

- Similar to other matrix switchers, *VikinX* has two operation modes: *Command* and *Online*.



While in ***Command*** mode, you can configure the combination of the matrix switcher and push *OK* to add the event in the playlist.

In *Online* mode, you can control the inputs/outputs in real time, just by pressing the relevant cell in the switcher grid.

You can specify the number of inputs/outputs in the grid using the relevant buttons in the dialog. In its lower left part, specify the delay/precession of the event in milliseconds.

TIP (!) *Switcher Servers*

You can control one switcher from numerous ***AirBox*** machines using the relevant ***switcher server*** add-on.

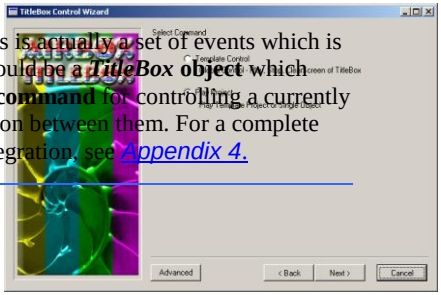
In this example, we will configure the Quartz matrix plug-in to send commands to the ***Quartz Server*** IP: Go to **Settings** menu ➔ **Modules** ⇨ ***Remote*** tab and select the Quartz Matrix Switcher output row.

Pressing the ***Configure*** button will invoke a setup dialog. You can specify the IP address in it.

The ***switcher server*** will receive all commands coming from ***AirBox*** units in the local area network and will control the switcher accordingly.

Currently we can offer switcher servers for Kramer matrix switchers, VikinX matrix switchers, Elpro switchers, and Quartz matrix switchers. The setup principles are similar for all of them.

IMPORTANT: When using a matrix server, you have to start it first, before running the ***AirBox*** channels that will send commands to it.



- ***TitleBox NetControl Output*** – This is actually a set of events which is used to manage objects in ***TitleBox***. It could be a ***TitleBox* object** which you'd like to control from ***AirBox***; or a **command** for controlling a currently open project in ***TitleBox;*** or a combination between them. For a complete description of ***AirBox*** with ***TitleBox*** integration, see *Appendix 4.*

The ***TitleBox** Control Wizard* appears after selecting **Edit➔Add/Insert ➔ Event➔TitleBox NetCtrl Output…**. It will guide you through creating a ***TitleBox Net Control Output*** event. Follow the instructions and select the ***TitleBox*** project and/or object, and the desired action. You can evoke the Wizard also by right-clicking on a playlist row and selecting the relevant command from the drop-down menu (*Add/Insert Event➔)*.

If you press the ***Advanced*** button in the left lower corner of the *Wizard*, the *Configuration dialog box* will open. There you can define more sophisticated settings of the event (offset, duration, color, or even the text of the text objects).

Configuration dialog box:

Template area: Here you can see the [General Commands] and a list of available projects. Only projects that have been previously saved as templates in ***TitleBox*** (**Network** menu➔ *Export project as Template*) could be managed from ***AirBox***.

General Commands:

Start – starts the project in ***TitleBox***.

Stop – stops ("freezes") the object(s) on the screen because of ceasing the exchange of information with the graphics buffer.

Clear screen – clears the graphics frame buffer and hides all objects from the screen.

Reset – This command will stop and hide all previously displayed objects. This function would be useful if there have been other ***TitleBox*** events before the one you'd like to insert, but you're not quite sure about the display status of some object(s).

NEW: Slide show – this command triggers the Slide Controller in ***TitleBox***. You can choose between **Play, Stop, Pause**, or **Next** in the drop-down list to the right. Use the spin-box next to it to specify which slide you would like to control.

NOTE: The play and stop commands will be applied to the slide whose number is specified in the spin-box!

For example: ⊙***Slide show*** **[Play] [2]** would mean start showing slides from slide 2.

⊙***Slide show*** **[Stop] [3]** would mean stop slide 3, but the slide controller will continue showing the other slides in the project.

If you need to stop the slide controller, please insert a Project ***Stop*** command.

Text Property area: When you select a command, it appears in the mid-window field. To activate a command, check the box in front of its name. After selecting the command, press the ***OK*** button. The ***TitleBox*** command event will appear in ***AirBox*** playlist.

When you select a ***TitleBox*** project its objects appear in the lower property window. You can select one (or all of them) to be controlled from ***AirBox*** by checking the boxes in front the objects. Choose the **Command** field (*Play, Stop* or *Update).* The [*Update*] command is used for text items that have been changed after their recent use in ***AirBox***. In the following fields to the right you can see the object's properties (duration, offset, effects, etc.). *Offset field* allows setting the time for earlier or later start of the object according to the next video clip. After selecting the object(s), press the ***OK*** button. The ***TitleBox*** object event will appear in ***AirBox*** playlist.

Channels - These correspond to *TitleBox channel ID*, set in ***TitleBox*****/Project ➔Options⇨*Network***.

Text Property area – you can type new texts of text objects in it.

IMPORTANT: To use **TitleBox Net Control output** event, you have to start your ***TitleBox*** with **Net Control** function (**TitleBox➔ Network➔ Net Control**) where available (***TitleBox Light Edition*** *does not support this option*).

To control a project (its objects) from ***AirBox***, you have to create that project in ***TitleBox*** first and export it as a template into *Template folder* (***TitleBox/*** **Network➔ Export project as template**). The **Template folder** is created automatically during ***TitleBox*** installation. If the ***AirBox*** module is installed on a different computer or you need to change the folder's location, then after the installation of ***AirBox***, you have to start the **TitleBox Net Control Setup** (Programs→PlayBox Technology Ltd.→AirBox →PLNetInst.exe).

Before pressing the ***Finish*** button in the TitleBox Net Control wizard, uncheck the ☐***Split Command*** **box**. Thus, only one row will be inserted in the playlist.

***The following paragraph contains an Example playlist prepared with ☑Split Command*:** If you want to start **Crawl1**, **Roll1** and **Sequence** from the **"*football*"** project, and stop all objects and clear the screen after two clips, the playlist should look like this:

	Start time	Duration	Type	Category	Title	Performer	Notes	Location
11	17:07:52	00:01:17	MPG2 (48 kHz)		Discreet2000_Chapter09_Testimonial_Com			H:\Mpeg2\PAL\Di
12	17:09:09	00:02:24	MPG2 (48 kHz)		Trailer			H:\Mpeg2\PAL\Mc
13	17:11:33	00:00:00	Ext. event		TitleBox Command [<STOP>]			
14	17:11:33	00:00:00	Ext. event		TitleBox Command [<CLEAR SCREEN>]			
15	17:11:33	00:00:00	Ext. event		Crawl 1[football.tmpl]			
16	17:11:33	00:00:00	Ext. event		Roll 1[football.tmpl]			
17	17:11:33	00:00:00	Ext. event		Sequence 1[football.tmpl]			
18	17:11:33	00:00:00	Ext. event		TitleBox Command [<START>]			
19	17:11:33	00:02:41	MPG2 (48 kHz)		Discreet2000_Chapter16_Testimonial_Met			H:\Mpeg2\PAL\Di
20	17:14:15	00:01:39	MPG2 (48 kHz)	Closing Ceremor	Jumanji - Trailer2	Steven Spielbe		\\Trueserver\E\Mp
21	17:15:55	00:00:00	Ext. event		TitleBox Command [<STOP>]			
22	17:15:55	00:00:00	Ext. event		TitleBox Command [<CLEAR SCREEN>]			
23	17:15:55	00:00:31	MPG2 (48 kHz)		Trailer2			H:\Mpeg2\PAL\Mc

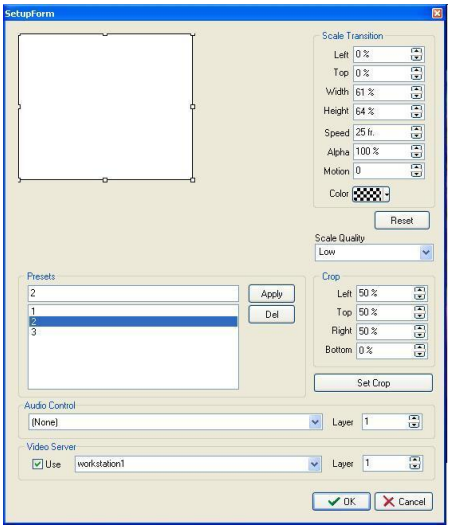
- ***Video Resize Control Output***

This option allows resizing the video output using pre-defined presets. **IMPORTANT:** The Video Resize option is available only for **Multi-format playout** plug-ins in ***AirBox***

The ***Video Resize Presets*** drop-down list contains all previously created presets in **Settings->Modules->Remote control->Video Resize Ctrl Output** window. When you activate this function for the first time, this list will be empty.

If you don't have any previously prepared preset, you can make it now from current window, just press the ***Setup*** button. A set-up form will open.

The largest area in the **Setup Form** is designed for preset previewing. Use your mouse to squeeze and drag around the preset, or resize it using the transition spin-boxes to the right (see their description below). Write the name of the new preset in the *Preset* string and press ***Add*** to enter it in the list of available presets.



If you want to view the settings of a preset from the list, click on its name. You can change it and then press the ***Apply*** button to save the changes. If you want to remove an already existing preset, select it and press the ***Del*** button.

The ***Scale Transition*** field in the right contains tools for precise positioning and resizing of the video output. All values are preset-specific:

Left – this percentage represents the offset from the left margin of the monitor. The video portions that remain unseen are still being

rendered.

Top –the offset percentage from the top of the monitor.

Width – Shows the ratio between the scaled video size and the original one. Decreasing this value "shrinks" the video from both left and right.

Height – Decreasing this percentage "shrinks" the video from both top and bottom.

Speed – The time (in frames) for transition from the previous video layout to the current resize preset.

Alpha – Use it to set transparency to the video (in percent).

Motion – Choose the transition effect for the current resize preset from the drop-down list. This is the way the video will move while resizing. The available options are: ascending effect (positive digits), descending (negative digits) and linear appearance (the zero value).

Color – Set the color for the surrounding area of the scaled video. Usually this part is used as a background for graphics insertion (i.e. in info channels).

Reset – use this button to go back to the original settings while creating/editing a preset. This button practically acts as an undo function to all unsaved changes in the ***Scale Transition*** field.

Scale quality – This is an obsolete selection box, please leave it to the default "Low" setting, as it is the one which is producing the best results currently.

NOTE: This setting will apply to all resize events once you select it from the drop-down list.

Crop – You can crop the original video by percentage from *Left, Right, Top* and *Bottom.*

NOTE: The crop will be executed right after you press the ***Set Crop*** button. This functionality is not preset-dependent!

Video Server

This option is used, when you want to have a **Picture-in-Picture** functionality. The second picture comes from **AUX** source, as it is defined into ***Output*** settings window.

Usually, the background picture is the output of ***AirBox***, and the overcome picture is the resized picture, coming from **AUX** source.

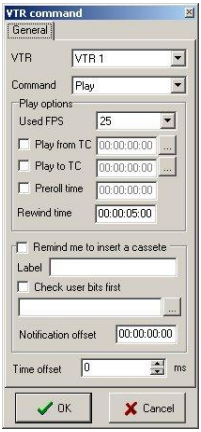
Check the ☑ ***Use check-box*** to allow this functionality and enter the PC name of the ***AirBox*** PC.

Select the ***Layer –*** screen layer of the resized picture.

NOTE: Screen layer should be 1 (the default value), if the resizing concerns **AUX** source.

Screen layer should be 16, if the resizing concerns playlist.
Important: While ***Video Server*** ☑ ***Use*** is checked, and you want to resize both playlist and **AUX** source, you must define **AUX** source resizing event first into the playlist and then playlist resizing event.

Audio control – this option is used in conjunction with previous option.
If a ***Video Server*** is used, than you have to select if the audio from **AUX** source (i.e. the resized picture) will be used.
There are three options - **Full**(100%); **Mute**(0%) or **Mix audio** with the audio from ***AirBox*** output.
Layer – the same layer number, as for the video server.



- *VTR Control plug-in…* Although ***AirBox*** was designed as a file-based playout engine, now you can control up to 2 external VTRs through *RS422* for tape-based playout. All you have to do is insert a VTR control event in the playlist.
The VTR command dialog consists of two tabs – General and Advanced. In the ***General*** tab you have to specify to which VTR ***AirBox*** will send the command and the action to be executed at receiving it (Play or Stop). Below are situated the Play-related settings:
In the *Used FPS* drop-down list, select the temporal resolution of the tape (frames per second).
If you would like to play a tape from one point to another, check ☑ ***Play from TC*** and ***Play to TC***, and specify the initial and the final timecode. In this case, you will have to specify the maximum Rewind time (in milliseconds). Make sure not to insert another VTR control event for this particular VTR within the framework of this period (here -60000 msec.). Otherwise a tape position conflict might occur and the earlier event will not be executed properly.
When checking the ☑ ***Remind me to insert a cassette*** box you will be prompted to insert a cassette. Enter a note in the string to the right. Use the ☑ ***Check user bits*** checkbox to define the user bits of the cassette. You can also browse for them by pressing the … button to ensure that the right cassette has been inserted. In the ***Notification offset*** string specify how much time before the event ***AirBox*** will remind for the cassette insertion.
Different VTR brands have different command reaction times. Find out how many milliseconds it takes your VTR to react to the command sent from ***AirBox*** and enter this value in the *Time offset* spin-box. Thus, the command will be sent a little bit earlier, to guarantee seamless switching from ***AirBox*** to VTR playout.

(!) TIP: You will need a switcher to change between the ***AirBox*** and the VTR playout. Therefore, a Switcher Event should always be present in the playlist before or after the VTR control event, unless you decide to switch manually. You could use the Complex events feature to create presets for later use (see the Complex Items section further in this manual).

NOTE: Like all other External events, the VTR plug-in must be enabled first in **Settings➔ Modules ⇨ *Remote Control*** tab.

IMPORTANT: As the VTR control is executed through the PC COM port, you will need an RS232 to RS422 converter, such as Addenda or Leitch.
IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

III.2.6. Insert

The Insert commands are identical to the Add commands that have already been described in the section above. They differ from the Add commands solely in the insertion point in the playlist. While an Add command will add the selected event at the end of the playlist, the Insert command will insert the selected event above the currently selected line.

III.2.7. Delete current from list

This item removes the currently selected clip from the playlist.

III.2.8. Delete unsupported clips

This command will remove all unsupported clips from the current playlist. It is used mainly when you import online media library files in your playlist. The OML files might contain *.avi + *.wav files. Both types are inserted in the playlist (using the Import tab delimited functionality from the **File** menu). ***AirBox*** will consider the *.wav files as unsupported format, so use ***Delete unsupported clips*** command to clean up your playlist.

III.2.9. Clear List

This command removes all clips from the playlist.

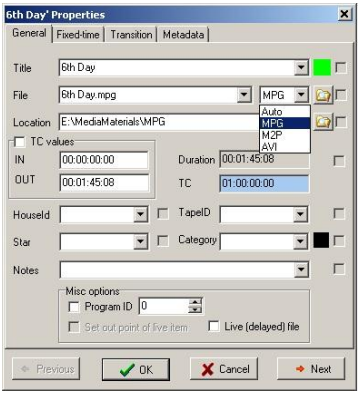
III.2.10. Clip Trimmer

Invokes the ***Clip Trimmer***. It allows previewing, non-destructive trimming and exporting parts of the currently selected clip to new files.

III.2.11. Properties

This command opens the *Clip Properties* window. It has four tabs: *General*, *Fixed-Time*, *Transition*, and *Metadata*. .

- General



The first three lines in the ***General*** tab contain basic clip description information: ***Title, File*** name and ***Location***.

(!) TIP: You can save the last string entry by ☑ checking the check-box next to it.
NOTE: Saving the last string entry is possible only for Dummy or Incomplete clips.

The green square next to the ***Title* string** means that the file is available. This rectangle will turn red if the file is missing.

The ***IN***, ***OUT*** and ***Duration*** strings contain the IN point, OUT point and clip duration data. You can change these values in order to make your clips shorter. The *Duration* is calculated automatically from the

IN and *OUT* values. Besides, if you change the *Duration*, the *OUT* point will adjust accordingly.

If there is information about the time-codes of the first and last frame in the clip, you can check ***TC Value*** check-box and then into *IN* and *OUT* strings you will see these time-codes.

The *TC* field is necessary when there are subtitles to be displayed together with the clip, as time code is the reference for displaying them. If you change the TC value, it will be saved in the playlist for future use.

When using subtitles, you should also enter a ***TapeID*** value – read more in the **SubtitleBox** section further in this manual.

You can view and edit the ***File type***, ***Star*** and ***Category*** information in the relevant strings. The colored square next to the *Category* string represents the color which will be displayed in the **Category** column of the playlist. You can change this color by double-clicking in the square.

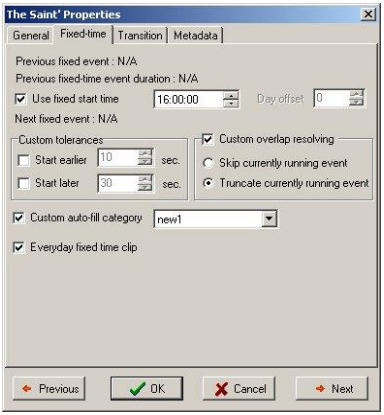
Use the ***Notes*** string to type your notes about the clip.

Program ID is checked when the stream is MPTS (it could be a live MPEG2 stream coming from the network or a file). Type the Program ID (for example 12060), not the number of the program (i.e. not 1, 2 or 3).

If you are going to playback a clip while it is being captured, check the ☑***Live (delayed) file*** check-box. If necessary, specify the *Duration* of this live playback and then check the *Set out point of live item* box.

Most of the properties in this window will be displayed in the playlist grid. If you save the playlist, these values will be saved as well.

NOTE: Clicking ***Previous***, ***OK*** or ***Next*** will apply all changes you have made to the current clip properties! If you want to discard them, please click ***Cancel***.



- Fixed time

The ***Fixed-time*** tab allows setting an exact start time for the particular clip.

IMPORTANT: If you do not choose any of the Custom settings for the fixed-time event, the Default settings will apply. A detailed description of the default settings is available in the *Fixed Time event* **Settings** section further in the manual.

WARNING! When using fixed time events, the playlist should start and end within the same calendar day (i.e. the playlist should not go beyond midnight). Otherwise, we cannot guarantee the proper operation of the fixed time logics.

When using fixed start times, you always have to account for the other fixed times in the playlist. Therefore the first two lines in this tab contain information about the preceding fixed time event and its duration; and the fourth line prompts the start time of the following fixed event (if any). If you try to set a start time which is in conflict with the surrounding events, the time-picker background will become red. A warning message will appear on clicking OK and will prompt the allowable start time until you set it.

Between the *Previous* and *Next fixed event* rows are situated the two spin-boxes describing the current fixed-time event. Check the ☑***Use fixed start time*** box and enter the time. In the *Day offset* spin-box, enter the number of days to go prior to executing the fixed time event. Day offset zero means the date of ***AirBox*** startup!

When using fixed start times, two types of time conflict might occur – overlapping of playlist items or gap in the playlist. In the first situation there is not enough time to playout all clips in the playlist before the fixed-time event starts. Therefore you can choose between two ☑ ***Custom overlap resolving*** options:

⊙***Skip currently running event*** – when this option is selected, ***AirBox*** will skip all clips that cannot be played out as a whole. Let us assume that the time remaining till the fixed start is 2 minutes and all the clips before it are longer. ***AirBox*** will skip them and the 2-minutes gap will be filled with the ☑ ***Custom auto-fill category*** (see below).

⊙***Truncate currently running event*** – ***AirBox*** will playout as many clips before the fixed time event as possible. The currently playing clip will be truncated when the fixed time comes.

In the second situation, when there is a gap in the playlist (either because the content is not enough or you have selected to skip the currently running events) you will need a ☑ ***Custom auto-fill category***. This drop-down list contains all auto-fill categories previously prepared by you and a [Default Clip] entry. Check the *Auto-fill settings* section to learn how to create these categories.

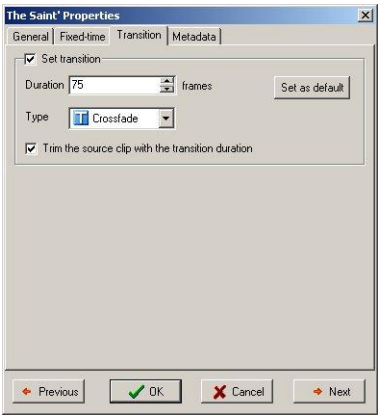
In case you can accept some deviation of the fixed time, check the relevant ☑***Custom tolerances*** box and describe it. Thus, you can ease the complex operations when it comes to a few seconds differences.

☑ ***Everyday fixed time*** is needed in case you loop your playlists. If you leave this check-box empty, the fixed time will be executed only during the first loop.

NOTE: Please note that you cannot use simultaneously *Day offsets* and *Everyday fixed time*.

WARNING! DO NOT use fixed time events within a bookmark's time range!

➢ Transition



The ***Transition*** tab accommodates settings related to transitions between clips in the playlist. The transition settings are applied to the beginning of the currently selected clip.

Check ☑ ***Set transition*** to enable the transition.

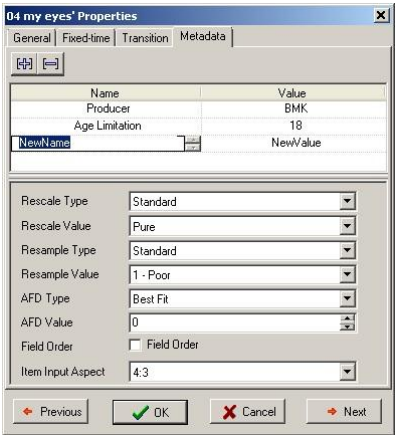
Specify the transition *Duration* (in frames) in the spin-box below.

The *Type* drop-down list contains all currently supported transitions. Choose the one you need from there.

☑ Trim the source clip with the transition duration – if you check this box, the whole transition will be applied to the last still frame of the previous clip in the playlist.

If you want to keep these settings for other transitions in the playlist, press ***Set as default***.

NOTE: Transitions are supported only on the new mixed playout plug-ins!!!



The ***Metadata*** tab provides room for additional information fields related to the currently selected clip.

In the upper part of a window, you can add additional metadata, connected to the content of the clip. This information can be entered manually or through dragging from DataBox. In all cases you need to specify some metadata categories that will accommodate the relevant metadata values.

For example, the Name of a metadata category is [Producer] and the Value is [a person/ a company].

Thus, if you have the producer name in ***DataBox*** [Person] and map it to ***AirBox*** [Producer], that information will be transferred automatically when you drag clips from DataBox to the playlist grid.

You can use these fields in graphic rules, to present information that does not appear in the playlist columns.

Click in the Metadata name cell to enter the name that will be used as reference in the graphic rules. In the Metadata value cell, enter the additional information that should be presented in the graphics while this clip is on air.

Please, refer to the Graphic rules section for detailed explanation on the metadata implementation.

Except for showing information about the currently playing clip, metadata categories can be used for changing the links to picture and sound objects in ***TitleBox***. Thus, you can change the image shown in a picture object or the sound *that is played in a sound object.*

All you have to do here is:

1. Specify the Metadata name in the left column
For example: [new picture]
2. Specify the file path to the new media to load in the column to the right.
For example: [E:\Pictures\pic\A Dark Night.jpg]

NOTE: The file path should be local for the ***TitleBox*** machine!!!
Thus, you will have [new picture] [E:\Pictures\pic\A Fantastic Voyage.jpg] in one of the rows. Then, go to **Settings ➔ Graphic rules** and set the conditions and action offset time. Please check the Graphic rules section for details.

IMPORTANT: Make sure not to use tab characters in the metadata fields! Otherwise, the saved metadata will not be interpreted correctly.

The lower part of the Metadata window is used for entering a specific metadata related to video parameters of the current clip. If there is no metadata into the file or they are not correct, you can enter here the proper data.

For each parameter, there is a drop-down menu from which to select the data. The possible video metadata into "Metadata" window are:

- **Rescale Type** – rescaling type for the video. If the rescale type is *Custom*, then you can add a specific rescale value from the next field **Rescale value.**
- **Resample Type** – resampling of the video bitrate. If the resample type is *Custom*, then you can add a specific resample value from the next field **Resample value**.
- **AFD** (Active Format description) **Type** – If it is custom, than you can select a value from the next field.

(!) TIP: Here it is the ccomplete list of AFD codes values from ETSI TS 101 154 V1.7.1 Annex B, ATSC A/53 Part 4 and SMPTE 2016-1-2007:

0- ETSI: reserved;

ATSC: undefined

1- reserved,
2- ETSI: 16:9 active picture (top aligned);
ATSC: "not recommended"
3- ETSI: 14:9 active picture (top aligned);
ATSC: "not recommended"
4- ETSI: box > 16:9 (centre): wider than 16:9 active picture. The aspect ratio of the source area is not given, and the size of the top/bottom bars is not indicated.
ATSC: bar data (indicating the extent of top, bottom, left, and right bars) should be transmitted when using this code.
5- reserved
6- reserved
7- reserved
8- Full Frame image, same as the frame (4:3 or 16:9)
9- 4:3 Image: Full Frame in 4:3 frame, Pillarbox in 16:9 frame
10- 16:9 Image: Letterbox in 4:3 frame, Full Frame in 16:9 frame
11- 14:9 Pillarbox/Letterbox image
12- Unused
13- 4:3 with shoot and protected 14:9 centre. The term "shoot and protect" is not explained in the standard, but means that the areas above and below the central 14:9 region of the 4:3 active picture can be trimmed without losing important detail.
14- 16:9 with shoot and protect 14:9 centre. Here, the areas to the right and left of the central 14:9 region of the 16:9 active picture can be trimmed without losing important detail
15- 16:9 with shoot and protect 4:3 centre. Here, the areas to the right and left of the central 4:3 region of the 16:9 active picture can be trimmed without losing important detail

- **Field order** – check it to change the original file order
- **Item input Aspect** – the aspect ratio of the current clip. If there is no info about the aspect in the file, or it is wrong, you can enter it here.

NOTE: Metadata per clip are active in Multi Format plug-ins only.

III.2.12. Randomize

This command randomizes the order of all selected clips (highlighted in the playlist). It is quite useful for music video channels.

III.2.13. Apply Transition

This command is used to apply a default transition to a select item (items). You can set a transition to be a default one, from clip's **Properties->Transition** tab.
Important: this feature is available for Mixed plug-ins only.

III.2.14. Playlist loop

This command duplicates the checkbox that loops the playlist for continuous playback.

III.2.15. Clip loop

This button will loop the currently selected clip when ***AirBox*** reaches it. This functionality is not the same as the Loop check box in the main ***AirBox*** window (see the Playlist and Clip Buttons section above).

III.2.16. Select all

Selecting the whole playlist.

III.2.17. Deselect

Deselecting the whole playlist.

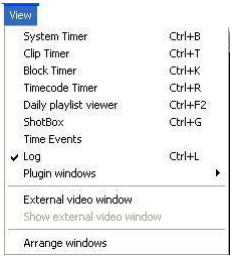
III.2.18. Invert selection

Inverting the selection in the playlist.

III.2.19. Find/Replace

This is a searching/replacing function in the playlist.

III.3. View Menu



III.3.1. System Timer

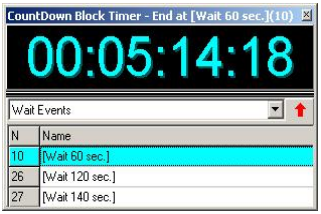
This is a system time clock. It could be shown as a digital or analog clock. Right-click it and check the desired appearance from the context menu.

III.3.2. Clip Timer

This is a clip-related timer. Its accuracy depends on the *MPEG2* decoder used. Right-clicking over it invokes a context menu in which you can choose the timer mode (time elapsed/remaining). If you check the [✓Count down] item, the timer will show exactly how much time remains till the end of currently playing clip. The background is black, and a blue progress bar indicates what part of the clip has already passed. If you uncheck the [✓Count down] row, the Clip timer will start counting up, showing the elapsed time from the beginning of the clip. The colors of the progress bar and the digits will reverse.

(!) TIP: The color of the progress bar and of the digits can be changed in **Settings ➔Colors⇨*Timers*** by clicking in the relevant fields there.

III.3.3. Block Timer



This is an ***event-related countdown*** timer. It shows how much time remains until the selected playlist event or until the [End of the playlist]. Choose the event type to display from the drop-down list: [Stop], [Stop Cue], [Wait], [Wait Until], etc. If there are several uniform events in the

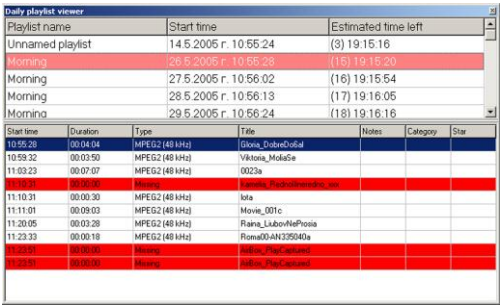
playlist, they are shown in a pop-up list, arranged by their playlist line numbers so you can choose one of them. If you do not select an *event*, the timer will show by default the time remaining till the end of the playlist.

A progress bar indicates how much of the time has already passed. The color of the progress bar and of the numbers can be set from **Settings ➔Colors⇨*Timers.***

III.3.4. Timecode Timer

The timecode timer displays the timecode received from the LTC Reader plug-in if available. The incoming LTC should be connected to the sound card of the playout server.

III.3.5. Daily playlist viewer

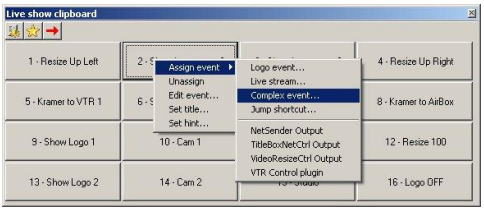


The Daily Viewer is a tool that will help you in managing your daily playlists. In the area above, you can view all daily playlists. The number in the brackets in front of the start time represents the number of days remaining till the start. For example, if there is a two in the brackets and then 12:00:00, this means that the playlist will start in two days, twelve hours.

When you click once in a daily playlist row, its items will be displayed in the grid below. Double-click in a daily playlist line will load it immediately. Please note that this will interrupt the playback!

WARNING! Starting a daily playlist before its scheduled start time while in Daily playlist mode (**Settings ➔ Start Up…** → ☑ *Auto load daily playlist*) may cause playback jams: at the time when a daily playlist should start according to the schedule, ***AirBox*** will load it and start playing it from the beginning again!

III.3.6. ShotBox



Selecting this **View** menu item will show/hide an additional window with buttons for fast switching/inserting of custom events.

All clipboard buttons can operate in two modes:

Execute mode - pressing a button while in this mode will execute the event assigned to it immediately. In case a live stream is assigned to this button, a live stream row will be inserted in the playlist and the playback will jump to it.

NOTE: No offsets will be applied to the events while in this mode!

NOTE: In execute mode, a complex item is treated as an events container. All events assigned to it will be executed immediately, with no offsets.

Insert mode - pressing the relevant button will insert the event assigned to it in the playlist. You can specify the point of insertion using the location toggle button:

Insert as next will insert the event after the currently playing clip. If ***AirBox*** is in Stop or Pause mode, the event line will be inserted as the next line to be executed after resuming the playback.

Append at playlist end will add the selected command to the end of the playlist.

TIP (!) If you need to insert an event line in another position in the playlist, just drag-n-drop the relevant button to the line in which you would like to insert it.

TIP (!) Hold down the Alt key while clicking on a button to toggle the current mode of operation. Thus, you will switch between Execute/Insert modes for this particular command.

To change the buttons' number and appearance, press the gear-wheel button. The buttons setup dialog will pop up. Define the dimensions at your will.

NOTE: If the matrix settings cannot accommodate all the buttons, a warning dialog will appear and you will not be able to apply the changes.

NEW: For emergency execution of certain items in the playlist, you can assign a Jump shortcut to a button. The "jump to" target can be a playlist item number or a

bookmark name.
NOTE: You cannot drag these shortcuts to the playlist! They work only in execute mode!
TIP (!) Instead of going to View menu, you can press Ctrl + G to open the Clipboard window.
TIP (!) Instead of pushing a button, you can press Ctrl + number key to execute the command assigned to the relevant button.

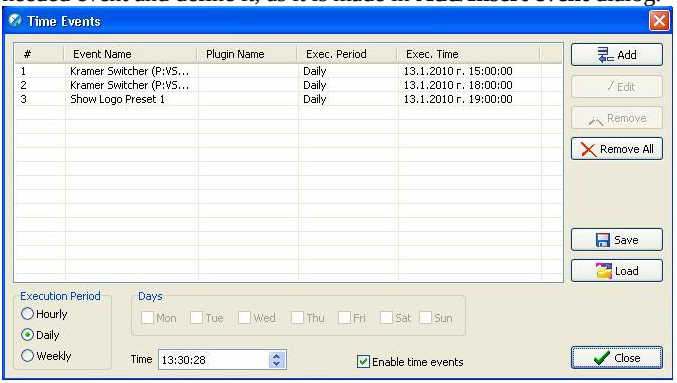
III.3.7. Time Events

This is used for preparing time schedules for executing the events.

In **Time Events** window, firstly you have to enable time events by checking the relevant check-box in the bottom of the window.

Select the **Execution Period** – Hourly, Daily or Weekly and **Time** for executing the event.

Press **Add** button, a list of all available events will appear. Select the needed event and define it, as it is made in **Add/Insert event** dialog.



In the example above, a ***Kramer switcher*** event will be executed each day at 15:00 h. and at 18:00 h. Also, a ***Logo*** preset 1 will be started each day at 19.00h.

If you want to edit an entry, select it and press the **Edit** button.
If you want to remove the entry, select it and press the **Remove** button.

III.3.8. Log

Choosing this item in the **View** menu will open a Log View window. It is used to show the events that have occurred during the ***AirBox*** operation.

(!) TIP: All windows can be freely resized and moved around the screen, staying on top of other windows.
<Ctrl>+click on a Timer window will change its appearance. Check it out!
Right-clicking on any timer window opens a dropdown menu. Select **Can Snap** in it to lock the timer position to the main window.

III.3.9. Plug-in windows

Select this item to display the additional windows available with the currently used output module.

III.3.10. External video window

✓Check it to move the video window outside the main ***AirBox*** window. You can resize the video window both by pulling its edges with the mouse pointer or by right-clicking in it (a dropdown menu will suggest several zooming options).

III.3.11. Show external video window

If you have closed the external video window, you can view it again by ✓checking this line. Pressing it once again will hide the window.

III.3.12. Arrange windows

Clicking in this line will align all open timers around the main ***AirBox*** window.

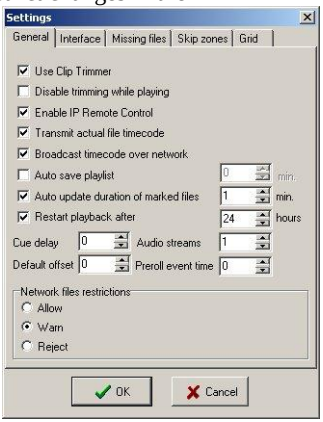
III.4. Settings Menu

The *Settings menu* contains the most important settings of the ***AirBox*** module.

III.4.1. General

This *Settings* dialog box is divided into several tabs.

- ***General*** tab contains general functionality options:
  - *Use Clip Trimmer* – if checked, ***AirBox*** will open the ***Clip Trimmer*** on double clicking over a clip. If this flag is not checked, the Clip Properties dialog will open instead.
  - *Disable trimming while playing* – to restrict changes in the currently playing list.
  - *Enable IP Remote Control* – enables or disables ***AirBox LAN*** remote control (using IP address and the Multi AirBox Manager).
  - *Transmit actual file timecode* – ***AirBox*** transmits the actual file timecode embedded in the clip file. This timecode can be used by external applications, such as ***SubTitle Plus*** (www.subtitleplus.com).
  - *Broadcast timecode over network* – If this one is checked, ***AirBox*** will broadcast the playlist time code, the current clip timecode, and the relative timecode (from the beginning of the playout session) over the network (via UDP).



  - *Auto save playlist* – saves the playlist automatically at predefined intervals.
  - *Auto update duration of marked files* – check it to enable automatic updating of clips' duration in case of file change. If not checked, ***AirBox*** will "remember" the duration of the original file and if you change this file with a longer one, it will be truncated. After you have checked this box, go to the playlist and highlight the files you would like to update (you can use multi selection). Right-click and choose **Auto update**. Thus, all "auto update" files will be checked according to the set interval and their durations will be updated accordingly.
  - *Restart playback after* – resets the hardware counter which is displayed at the **Master** (green) **counter**. This option is necessary due to various platform and format limitations. For example, *MPEG2* stream

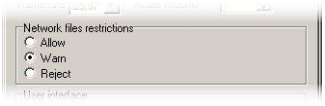
duration is limited to approx. 26 hours, so you must reset the counter at least once every 26-th hour.

NOTE: Decoder restarting may cause a few black frames in playback.

- *Cue delay* – this option concerns the **Cue** function (freeze at a first clip frame). It defines the delay (in milliseconds) before pausing on the first frame, since different decoders have different behavior regarding the first clip frame. This function is both decoder- and computer-dependent. You'll have to find the most suitable one for your setup by testing.
- *Audio Streams* –depending on the hardware platform used, ***AirBox*** can play out more than one audio stream.
- *Default Offset* – this is a general offset (measured in milliseconds) that will apply to all newly-inserted external events. The positive values mean later execution of the events; the negative values mean earlier execution. This offset will appear in the Notes column in the playlist at inserting an external event.
- *Pre-roll event time* – The command reaction times for external events is different for the different devices. Still, if you find out an acceptable compromise value that will serve your needs, you can set a general offset value to be applied in run time to each external event you add in the playlist. Thus, you will not have to enter the same values each time you create an event. This offset will not appear in the playlist!

NOTE: Do not forget to account for the pre-roll event time when you set additional offsets in the events' properties dialogs. The offsets and the pre-roll event time are summed up in runtime.

The next field***, Network Files Restrictions***, is designed to specify the procedure at inserting files that are not saved locally in the ***AirBox*** machine. This is a precaution option: The playback could stop at network failure if all your content is remote; or the playlist could end earlier – if some of your files are locally stored and the network fails, ***AirBox*** will label all remote files as missing, skip them, and hence the end time of the playlist will be reduced by the duration of all missing files.

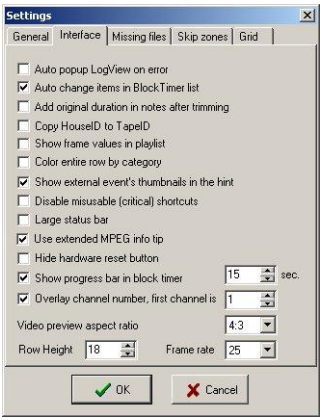


When ⊙***Warn*** is checked, the rows of all network-stored files in the playlist will become dark-green. A note [*Remote file*] will appear in the *Type* column.

When ⊙***Allow*** is checked, you will not be notified whether your files are remote or locally stored. Thus, you will take the chance to trust your network.

If ⊙***Reject*** is checked, the rows of all network-stored files in the playlist will become red (brown when selected). A note *Rejected remote file*

[Remote file] will appear in the *Type* column. These files are considered missing and will be skipped during playback. The playlist time will be recalculated accordingly if you have left the *Show duration of missing files* flag unchecked (see the *Missing files* section below).



➢ ***Interface*** tab provides some user interface options.

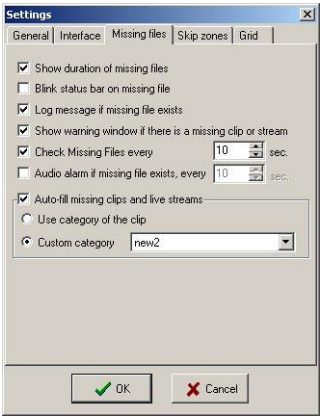
- *Auto popup LogView on error* – displays the *LogView* window automatically, when an error occurs.
- *Auto change items in Block Timer list* – the block timer will follow the subsequent events in the playlist (as chosen in the block timer dialog box). If not checked, the timer will remain fixed at the selected event in the list. After this event is passed, the block timer will read negative values, because the origin point will remain fixed in the past.
- *Add original duration in notes after trimming* – if checked, once you trim a clip, ***AirBox*** will automatically insert information about its original duration in the Notes column in the playlist. If you do not want to see this information, just leave this box un-checked.
- *Copy HouseID to TapeID* – a convenient way to automate assigning reference information, needed for subtitles insertion.
- *Show frame values in playlist* – check it to view the number of frames at the end of the duration value in the *Duration* column.
- *Color entire row by category* – fills the entire row in the playlist with the *Category*-field color of the relevant clip. This option refers to ***DataBox***' categories. You can change the category color in ***DataBox*** **Options** ⇨ ***Default values*** → *Colors to AirBox*

NOTE: You will have to drag-n-drop entries from the ***DataBox*** grid into the ***AirBox*** grid to view their category color.

- *Show external event's thumbnails in the hint* – by default, you will be able to view thumbnails of all TitleBox templates used in the TitleBox Net Control events in the play list. If you do not need them, just go to this check box and uncheck it.
- *Disable misusable (critical) shortcuts* – replaces regular shortcuts of "dangerous" playback commands with alternative ones as in the table to the left.
- *Large status bar* – enlarges the status bar in the bottom of the ***AirBox*** window

- *Use Extended MPEG info tip* – enables showing detailed file information in the hint when sliding the mouse pointer over a clip in the playlist
- ***H**ide hardware reset button* – checked by default, uncheck this box to be able to see the ***Reset hardware*** button under the counters in the main ***AirBox*** interface
- *Show progress bar in block timer … sec.* – defines the time before a clip's end for showing the progress bar inside the block timer (see **View➔Block Timer**). For instance if a 15-second value is set, the progress bar will be visible in the last 15 seconds of the clip playout. During the rest of the time, the progress bar will not be displayed, just the counter itself
- *Overlay channel number, first channel is* – a big figure showing the ***AirBox*** instance will be displayed in the grid background. You have to set the number of the first channel. The numbers of all subsequently open channels will be updated automatically. You just have to check the *Overlay channel number* box in each ***AirBox***' *Settings* if you want to view it in the grid.
- *Video preview aspect ratio* – choose the aspect ratio of Video preview window. This is needed because some decoders cannot report the aspect ratio of playing content, so this must be selected manually in order to preview content properly.
- *Row Height* – defines the height of each playlist row. It cannot be less than 16 pixels.
- *Frame rate, fps* – this entry is needed for estimating all kinds of time values (i.e. end time, playlist duration, etc.) while there is no accessible frame rate of a currently played file (for example ***AirBox*** is in **Stop** mode).

➢ ***Missing files*** is the third tab in the Settings dialog box. It refers to automatic handling of missing files in the playlist.



- *Show duration of missing files* – if there are any missing files in the playlist, their real duration or zero-duration can be displayed. This will affect the play list's total duration and End time that are shown in the *Status Bar* in the bottom. If this option is checked, a question mark will appear after [*Total Length*] and [*End at*] in the *Status Bar*. If it is not checked, but there are missing files, an exclamation mark will appear after [*Total Length*] and [*End at*] in the *Status Bar*.

- *Blink status bar on missing file* – in case there are missing files in the playlist, the *Total Length* and *End at:* cells in the status bar will become red and will start blinking.
- *Log message if missing file exists* – check it, to include the list of missing files in the log window.
- *Show warning window if there is a missing clip or stream* – checking this box will ensure that a warning dialog will pop-up to prompt the operator that there is a missing clip/stream in the playlist.
- *Check Missing Files every …sec.* – When you prepare your playlist, you can add to it files that are not available at the online storage yet. They appear in ***AirBox*** as red-colored lines. Check this box to let ***AirBox*** auto-check whether the missing files are already available or not.
- *Audio alarm if missing file exists, every …sec.* - use this option to enable audio alarm if there are missing files in the playlist. Thus, you will be alerted if there are missing files or if you accidentally delete a clip related to the current playlist.

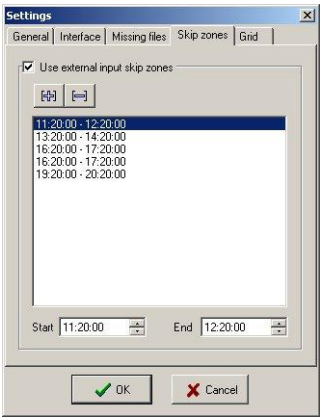
NOTE: The alarm is output on the PC speaker!

- *Auto-fill missing files and live streams* – ***AirBox*** will look for the auto-fill category according to your preferences:

⊙***Use category of the clip*** – ***AirBox*** will use the auto-fill category as specified in the missing file's properties. In case there is no such category, the default auto-fill clip will be played out.

⊙***Custom category*** – here you can choose among your own categories, prepared in advance in **Settings** menu ➔ **Auto-fill** dialog.

➢ ***Skip Zones*** tab is related to incoming external triggers, such as GPI input, DTMF tones or LTC input.



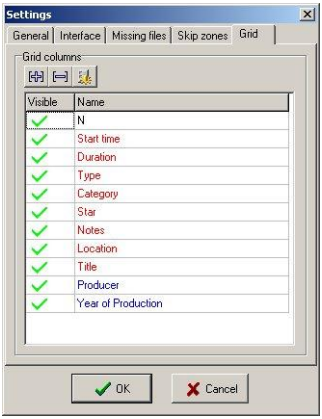
Here, you can list the time zones to disable the execution of commands related to external triggers. First, you have to specify the *Start* and the *End* time of a zone and then press the Plus button to add it to the list.

To remove a zone from the list, select it and press the minus button above.

Do not forget to check ☑ ***Use external input skip zones*** to activate them.

WARNING! Skip zones have higher priority than the Automation graphic rules and the ***Automation*** button in the main ***AirBox*** window! Both the graphic rules and the button will not operate properly when using Skip Zones, so please do not use them simultaneously!

➢ ***Grid*** tab allows you to control the columns to appear in the playlist grid.



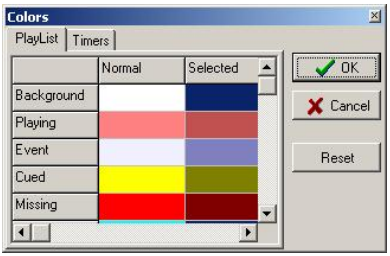
You can add new columns by pressing the ***Plus*** button above the list. Generally, a new column would contain a Metadata name (as it appears in the first column of the clip properties). Thus, once you enter some metadata for a clip, its value will appear in the corresponding column in the grid.

All columns are Visible by default. Double-click in the green tick-mark to turn them Invisible.

To remove a column from the list, click the ***Minus*** button.

Click to restore the factory defaults.

III.4.2. Colors



This option allows users to define the colors used in ***AirBox*** playlist for color-coding, as well as for timers.

Playlist colors:

Background – playlist background.
Playing – currently played clip.
Event – event rows.
Cued – a clip prepared for playback.
Missing – missing file rows.
Note – note (comment) line.

You can define colors for *Normal* and for *Selected* status of each playlist row.

Timer colors:

Clip timer – colors for the progress bar and the letters in the *Clip Timer.*
Block timer – colors for the progress bar and the letters in the *Block Timer.*
TC (timecode) timer – colors for the progress bar and letters in the *TC Timer.*

Clicking on the desired color box enables a combo-box for choosing a color or defining a custom one.

Reset button resets the selected field to default colors.

All the screenshots in this User's Manual are made with default ***AirBox*** colors and all explanations are accorded to them.

Playback Command	From	To
Play	<Space>	<F5>
	<Alt>+<P>	
	<P>	
Stop	double <Esc>	<F7>
	<T>	
Pause	<Space>	<F8>
Next	<Ctrl>+<Space>	<F9>
	<Alt>+<N>	
	<N>	
Jump	<Alt>+<Space>	<F10>
	<Alt>+<J>	
	<J>	

III.4.3. Modules

III.4.3.1. Playback

Here you can choose the active playback module, depending on the installed hardware platform. Check the latest list of platforms supported in ***AirBox*** in http://www.playbox.tv or write to playbox@playbox.tv.

Select the desired module from the list of available modules in the upper window and assign it to the corresponding ***AirBox*** channel in the lower window by double clicking the module or by pressing the ***Set*** button. This option allows you to start multiple ***AirBox*** applications on different hardware decoders at the same workstation.

NOTE: Depending on the active module, ***AirBox*** may recognize some files as invalid if these files are not supported by the respective hardware used.

If there is no hardware platform installed, there still are several choices:

➢ *Soft MPEG2 Playback* – Software-based MPEG2 playback. Used mostly for demonstration purposes, it represents all features available to Hardware playback except the video signal output. If you have a dual-head video card with TV output, the video overlay preview can be monitored through it.

➢ *Soft DV 2 Playback* – Software-based DV playback. Used mostly for demo purposes, it represents all features available in the Hardware playback except the video signal output. If you have a dual-head video card with TV output, the video overlay preview can be monitored through it.

➢ *Soft Mixed Playback*- Software-based playout of files with different compressions and frame rates in the same playlist. Used mostly for demonstration purposes, it represents all features available to Hardware playback except the video signal output. If you have a dual-head video card with TV output, the video overlay preview can be monitored through it.

➢ *DataPump MPEG Program Dumper* – Dumps the playlist into a single *MPEG2* file. Doing this does not require any hardware decoder. This feature can be used for simple cuts only – splicing, editing and joining of *MPEG2* files.
Pressing the play button while working in this mode will open a browse dialog for saving the resulting file. There are no setup options for this plug-in.

NOTE: This feature works faster than the real-time. For example, a 15-minute playlist compiles as a single file for less than 10 minutes. The speed depends on the *HDD* performance and the input/output stream configuration.

➢ *IP Pump MPEG Program Dumper* – An optional plug-in that sends the playback stream to a network IP address instead to a decoder. The IP Pump uses a standard UDP mechanism for data transfer. Please, see the **Settings** menu description, **Output** section for the *IP Pump Setup* window.

IMPORTANT: There is no VGA Overlay preview in this mode. There is no graphics insertion in with this plug-in!

NOTE: The IP Pump is an optional plug-in and is not a part of the standard ***AirBox*** functionality.

➢ *IP Stream MPEG-2 Playback* – An optional plug-in that sends the playback stream to a network IP address instead to a decoder. Its advantage in comparison to the IP Pump plug-in is that it provides the possibility of inserting graphics in the MPEG-2 stream and there is preview of the output video. Please, check the setup details below, in the **Settings ➔ Output**. menu section.

NOTE: The IP Stream is an optional plug-in and is not a part of the standard ***AirBox*** functionality.

➢ *IP H.264 Stream [MPEG-2 Playback]* is an optional streaming plug-in. In it, MPEG-2 files are decoded, graphics is inserted (if necessary), and video and audio streams are encoded in H.264 format. Then, the H.264 streams are multiplexed in MPEG-2 TS and sent to the network. Please check the setup details in the **Settings ➔ Output** menu section.
NOTE: Currently the only supported source file format is MPEG-2!

NOTE: The IP H.264 Stream is an optional plug-in and is not a part of the standard ***AirBox*** functionality.

➢ *IP WMV Stream[MPEG-2 Playback]* - an optional streaming plug-in. In it, MPEG-2 files are decoded, graphics is inserted (if necessary), and video and audio streams are encoded in WMV format. Please check the setup details in the **Settings ➔ Output** menu section.
NOTE: Currently the only supported source file format is MPEG-2!

NOTE: The IP WMV Stream is an optional plug-in and is not a part of the standard ***AirBox*** functionality.

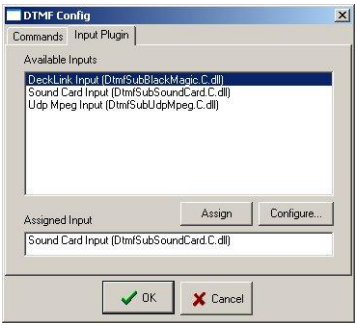
➢ *Mixed IP WMV Stream* - an optional streaming plug-in. The only difference according to the previous plug-in is that the IP WMV streamer supports only MPEG-2 compressed files, while the Mixed IP WMV streamer supports different file formats in the same playlist (MPEG-2, DV, MXF, DivX, etc.).

NOTE: The IP WMV Stream is an optional plug-in and is not a part of the standard ***AirBox*** functionality.

III.4.3.2. Remote Control

The available modules for remote control in ***AirBox*** are *GPI* (General Purpose Interface) Input and Output, Kramer Switcher Output, Kramer Matrix Switcher output, Leitch Matrix Switcher output, Ocelot Switcher Output, TitleBox NetControl Output and VikinX Matrix Switcher output**.**

➢ *DTMF Input Plug-ins*



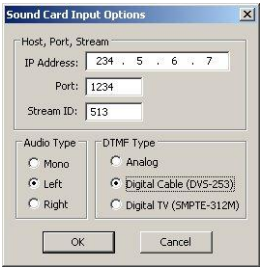
These plug-ins read the *DTMF* tones received on the selected input device on your machine. In **Settings** menu ➔ **Modules** ⇨ ***Remote*** tab, and select the DTMF Input Plug-ins row. Then, press the ***Configure*** button. The dialog to the right will appear. Go to the ***Input Plug-in*** tab first, to select the receiving audio device. Currently there are three options: *Sound Card Input*, *UDP Mpeg Input* and *DeckLink Input.*

- *Sound Card Input*

This plug-in is to be used for analog audio tones, received on your PC sound card (coming from an IRD for example). Select this line and press Assign to load it. Then, press ***Configure*** to select the sound input device and configure it:

⊙*Mono* – check it if the incoming signal is mono;

⊙*Left* – check it if the incoming audio signal is stereo, but you would like ***AirBox*** to read only the tones coming in the left channel;



⊙*Right* – check it if the incoming audio signal is stereo, but you would like ***AirBox*** to read only the tones coming in the right channel.

- *UDP MPEG-2 Input* This plug-in decodes *DTMF* tones that come through *UDP* in the *MPEG2 Transport Stream*.

Select the UDP Mpeg input in the DTMF plug-in list and press ***Assign***. Then, press ***Configure*** to specify the source of the cue tones (Host IP Address and Port), and the Stream ID. The DTMF tones could come in three different ways:

⊙*Analog DTMF* – the cue tones arrive as a separate audio stream in the TS. The PID of this stream should be entered in the Stream ID box.

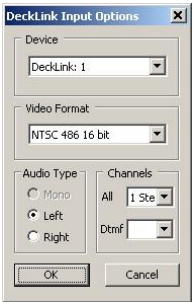
When the Analog DTMF is selected, to the left you can specify the Source audio channel.

⊙Digital Cable (DVS-253) – the US implementation of digital signaling for splice points, the points are described in SI tables.

⊙Digital TV (SMPTE-312M) – the European implementation of digital signaling for splice points, the points are described in SI tables.

After configuring the plug-in, click ***OK*** and go to the ***Commands*** tab. It contains all possible actions that can be executed upon receiving certain DTMF sequence. Please check the details in the next page.

- *DeckLink Input*



This plug-in allows reading DTMF tones embedded in an SDI video signal or coming through the analog audio inputs of a BlackMagic DeckLink board. Select it in the plug-ins list and press ***Assign***. Then, click ***Configure*** to setup the input.

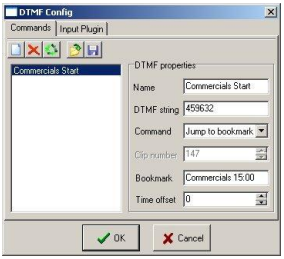
If there are more than one DeckLink boards installed on you system, please select which of them to use for capturing the cue tones.

NOTE: You cannot use the same DeckLink board for DTMF capturing and playback in the same time!

Below, you can select which audio pair contains the cue tones and whether they are coming in the ⊙*Left* or the ⊙*Right* channel.

Click ***OK*** to save your settings.

When you are ready with the plug-in setup, you can go to the ***Commands*** tab to create the needed presets.



In this tab, you have to specify what ***AirBox*** should do upon receiving certain sequence of DTMF tones.

Enter a *Name* for the command and specify the DTMF sequence that will trigger it. Then, select what should happen upon receiving this tone sequence in the *Command* drop-down list. Most commands are self-explanatory, but there are several that need to be

clarified:

Jump to / Cue to – when assigning this command, you have to specify the *Clip number* to which it refers.

Reset – resets the master counter in the main ***AirBox*** window (equal to stop & play command). This event is executed between two clips and does not affect the playback.

Hardware reset – resets the hardware platform!

WARNING! This command will interrupt the playback! After resetting the hardware, ***AirBox*** will remain in Stop mode!

Cue – same as the Cue button in the main ***AirBox*** interface, this command will pause the playback on the first frame of the currently selected clip in the playlist.

WARNING! This command will interrupt the playback!

Jump to bookmark in time range – this command applies only to bookmarks that have some Time zone specified in their properties. ***AirBox*** will not care about the bookmark's names. There are two possible occasions when working with this command:

- If the cue tone arrives within the Time range specified in the properties of any bookmark in the playlist, ***AirBox*** jumps to the relevant bookmark according to current system time.
- If no bookmark in the playlist has Time range that includes the time of arrival of the cue tone, ***AirBox*** ignores the command.

IMPORTANT: Please make sure not to create bookmarks with overlapping time zones. Otherwise, ***AirBox*** will jump to the first bookmark in the playlist that is assigned for the relevant time zone.

Jump to bookmark – this command uses bookmarks' names for reference. You must specify the *Bookmark* name in the string below, so ***AirBox*** would "know" where to jump.

There are two possible occasions when working with this command:

a) If there is a Time range specified in the bookmark's properties, and:

- the tone arrives within the time range – ***AirBox*** will jump to this bookmark
- trigger arrives outside the time range – ***AirBox*** will ignore the command

Thus, you can have more than one bookmark in the playlist that is assigned for the same time range.

b) If there were not "Time range" specified in the bookmark's properties, ***AirBox*** would jump to that bookmark unconditionally at receiving the trigger tone.

Please, check the Bookmarks description in the Edit menu section above for more details.

Offset – use this spin box to postpone the execution of the specified command. The value here is in milliseconds!

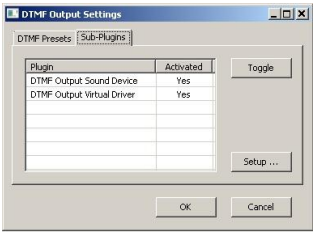
NOTE: This string can contain only positive values!

WARNING! All DTMF sequences (strings) must be the same length! Otherwise, make sure that longer sequences do not comprise some of the shorter sequences! Otherwise we cannot guarantee the correct execution of the assigned commands.

TIP (!) You can save your DTMF commands settings in a file. Thus, you can load them on other servers without having to configure the same settings numerous times.

Press the ***Save*** button to save the settings. To load them on another server, copy the settings file (*.dts) to it. Then, open **Settings ➔ Modules** ⇨ Remote ➔ DTMF Plug-ins configuration and press the ***Load settings*** button. Browse for the *.dts file and click Open.

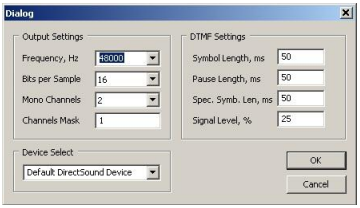
➢ *DTMF Output Plug-ins*



These plug-ins generate the *DTMF* tones and send them via selected sub-plugin.

Select the DTMF Output Plug-in row and press the ***Configure*** button. The dialog at the right will appear. Go to the ***Sub-Plugins*** tab first, to select the output audio device. Press ***Toggle*** button to activate it.

Currently there are two possibilities – *DTMF Output Sound Device* and *DTMF Output Virtual Driver*:



- ***DTMF Output Sound device*** – when you activate this sub-plug-in, the DTMF tone is sent to a device, defined into the plug-in configuration. Select the plug-in and press the **Setup** button, the configuration window will open.

In Output settings area, you can define the parameters of the DTMF tone – **Frequency**, **Bits per sample**, number of **Mono Channels** and **Channel Mask**. Depending on the channel Mask, the DTMF tone is sent to a specific audio

channel. If Channel Mask is zero (0), the DTMF is not sent. If it is one (1), DTMF is sent to the 1st mono channel. If it is two (2), DTMF is sent to the 2nd mono channel

Into DTMF setting, you can define:

Length of the standard **Symbol** in DTMF sequence - **numbers from 0 to 9 and letters A, B, C, D.**

Pause Length – length of the pause between symbols

Specific symbols length - Specific symbols are all symbols into the DTMF strings different than numbers from **0 to 9** and **letters A, B, C, D.**

Level of the signal – the signal level in percent.

Into **Device select** field, you can select from a drop-down list, what audio device to be used. The list is created automatically accordingly of the installed on your machine devices.

- ***DTMF Output Virtual driver*** – when select this driver, the DTMF tone is sent to some third party application (which can receives tones) instead of the computer audio device.

For example, such application is ***AirBox***, itself. It can be set from **General Output settings** dialog to create DTMF tones and send them to the video output. These settings are described in section for **AirBox-> AudioOutputs**

When you define the plug-in, you can go back to the **DTMF Presets** tab. Press the **Add** button to create a new preset. Enter the name of the preset and the DTMF string for it.

➢ *Relay GPI Switch Input/output*

This plug-in allows using of the ***PlayBox GPI Relay*** card.

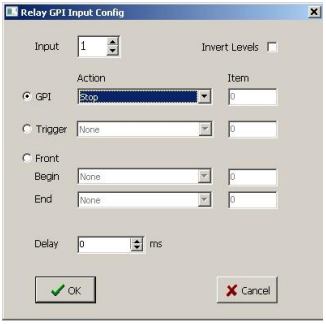
➢ The ***PlayBox GPI Relay*** card is special hardware card designed from ***PlayBox*** for receiving and sending GPI signals. Each Relay supports up to four (4) GPI inputs/outputs. One or more relays could be installed on the same machine.

The usage of ***PlayBox GPI Relay*** could replace the usage of COM port for receiving and sending GPI signals.

PlayBox GPI Relay functionality is optional and it is not a standard part of the ***AirBox*** module. In order to use it, you must obtain a relevant license.

If you have a licensed *Relay GPI* option, you can define which mode (*Input* or *Output*) to be enabled (or both of them) by double clicking the *Enabled* field. You can configure the Relay GPI further by pressing the *Configure* button:

Relay GPI In



In the **Input** field, select the GPI input number, which to be configured.

By default the GPI signal is with **High** pulse level. If you want to make the signal to be Low level, check the **Invert Levels** check-box.

Check **GPI** radio-button, to execute an ***AirBox*** action on receiving a pulse on the Relay input. Into the next ***Action*** field, define the ***AirBox*** action (Play, Stop, Pause, Resume, Next, etc.). Next **Item** field becomes available, if you have chosen "Cue to" or "Jump to" action. Then into **Item** field, you can specify the number of playlist item to cue to or jump to.

If you want at the beginning of the GPI pulse and at the end of the GPI pulse, to trigger the same ***AirBox*** action, select the **Trigger** radio-button. When the action is "Cue to" or "Jump to", then into **Item** field, you can specify the number of playlist item to cue to or jump to.

If you want at the beginning of the GPI pulse to trigger one ***AirBox*** action and at the end of the GPI pulse, to trigger another ***AirBox*** action, select the **Front** radio button. Into **Begin** field, enter the ***AirBox*** action which to be executed on the pulse beginning. Respectively, into **End** field enter the ***AirBox*** action on the pulse ending.

Delay – this is the delay of ***AirBox*** action in milliseconds.

- *Relay GPI Out*

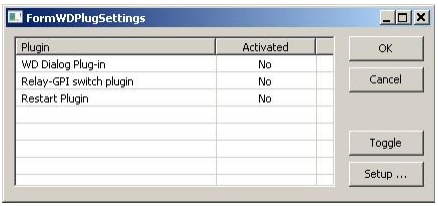
The *Relay GPI Output* is performed via dedicated *output events* in the playlist. When the playback reaches the *event*, the Relay GPI trigger is activated.

Into this setup window, define the **GPI output** number – the number of the GPI output, where the GPI signal will be sent.

Check the **Invert level** check-box, to set the level of the pulse to be Low.\

➢ *Watch Dog Plug-in*

Watchdog Plug-in detects if some malfunction of the application happens. When such malfunction occurs, **Watchdog** runs "activated" Sub-Plug-ins from its sub-Plug-in list



- WD Dialog Plug-in – this Sub-Plug-in start a text message appearing in front of the user.
- Relay GPI switch Plug-in – this Sub-Plug-in, switch on the **PlayBox by-pass Relay** Press Setup button to enter the needed configuration of the relay.
- Restart Plug-in – this Sub-Plug-in restarts ***AirBox***

Note: Currently, Watchdog Plug-in works only in Mixed DeckLink module.

➢ *Elpro Switcher Output*

The Configuration dialog for Elpro switchers contains two radio buttons:

⊙*Local mode* – check it if the switcher is connected to one of the PC COM ports (select it in the drop-down list below).

⊙*Network mode* – check it if the Elpro switcher is connected to another ***AirBox*** server, somewhere into the local area network (specify the Server address in the string below).

NOTE: In order to control an Elpro switcher from more than one ***AirBox*** instances, you need the Elpro Switcher server. The Elpro Switcher server application is an add-on, not included in the standard ***AirBox*** bundle

➢ *Acappella Switcher Output*

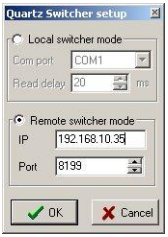
This configuration dialog contains only a drop-down list. In it, you have to specify the *COM port* that will interface the switcher control cable.

➢ *Concerto Switcher Output*

The configuration dialog represents the *LAN* setup for controlling Concerto switchers. Fill in the *IP address* and *Port* number of the switcher and press ***OK***.

➢ Quartz Matrix Switcher Output

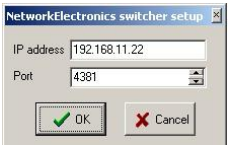
There are two possibilities for controlling the switcher:



⊙*Local mode* – check it if the switcher is connected to one of the PC COM ports (select it in the drop-down list below).

⊙*Network mode* – check it if the Elpro switcher is connected to another ***AirBox*** server, somewhere into the local area network. Specify the Server *IP address* and the *Port* number and press ***OK*** button.

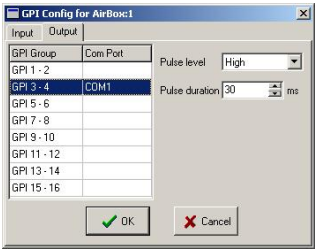
➢ Network Electronics switcher output



The configuration dialog represents the setup for controlling the switcher. Fill in the *IP address* and *Port* number of the switcher and press ***OK***.

:

➢ ***GPI***



A***irBox*** has two GPI modes - GPI Input, where *AirBox* works as a *GPI Slave* and GPI Output, where ***AirBox*** works as a *GPI Master*.

The GPI functionality is optional and is not a standard part of the ***AirBox*** module. In order to use it, you must obtain a relevant license. If you have a licensed GPI option, you can define which mode to be enabled (or both of them) by double clicking the *Enabled* field. You can configure the GPI further by pressing the *Configure* button:

➢ *GPI Input* – The column to the left contains a list of GPI Groups (four different GPI pulses per COM port). The GPI 1 stands for the CST pulse (input on pins 8 and 5), the GPI 2 is DSR (pin 6 and 5), the GPI 3 is RI (pin 9 and 5), and the GPI 4 is CD (pin 1 and 5).

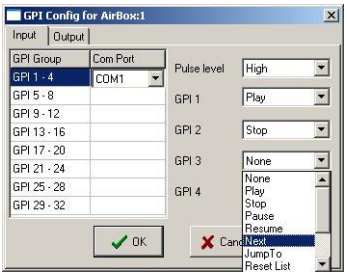
Specify the COM port for each group in the **Com Port** column. In the fields to the right you can define the desired ***AirBox*** function (Play, Stop, Pause, Resume, Next, etc.) for the respective GPI.

If you choose Cue to or Jump to, the setup window will expand for you to specify the number of playlist item to cue or jump to.

If you choose just Cue, the playback will pause on the first frame of the currently selected item in the playlist.

NOTE: The GPI Input plug-in and the DTMF plug-in provide identical sets of commands.

➢ *GPI Output* – Here you have to specify the *GPI* groups and the respective *COM* ports, too.



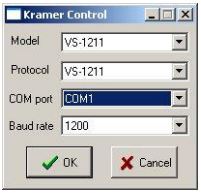
The *Pulse Level* field defines the level of the trigger pulse.

The *Pulse duration* field defines the duration of the trigger pulse in milliseconds.

The *GPI Output* is performed via dedicated *GPI output events* in the playlist. When the playback reaches a *GPI event*, the GPI trigger is activated for as many milliseconds, as defined in the *Pulse duration* field. After that the playback continues. If you don't want to continue the playback, just insert a *Stop, Wait or Fixed-time event* after the *GPI event.*

NOTE: You can find detailed information about ***AirBox*** *GPI* plug-ins in Appendix1, further in this manual.
IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

➢ *Kramer Switcher Output*



The ***Kramer Switch*** module allows you to control all x01 and x11 Kramer Switchers. ***AirBox*** controls them via the old protocol only. Protocol 2000 not supported in this plug-in! The switchers may be controlled via RS-232 and/or RS485/422 communication ports.

The *Kramer Switch output* functionality is not a standard part of ***AirBox.*** If you have a license to use *Kramer Switch output, Enable* and *Configure* it.

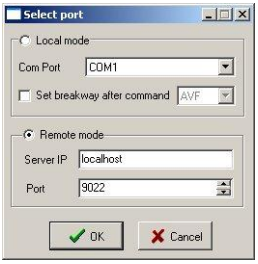
In the configuration window, you can define:

Model – the model of the Kramer Switcher used. You can select it from the pop-up list of the available ones.

Protocol – the protocol used for the respective switcher. You can select it from the pop-up list.

COM Port – the COM-port used for connecting to the switcher. You can select it from the available COM-ports.

Baud rate – the baud rate of the port.



➢ *Kramer Matrix Switcher Output*

The ***Kramer Matrix Switcher*** module allows you to control Kramer Matrix Switchers from ***AirBox***. This plug-in is also optional.

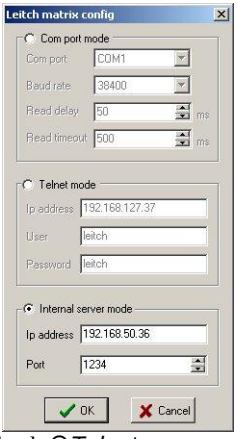
AirBox supports the entire series of Kramer matrix

switchers. They provide switching between 16, 12, 10, 8, 6 or 4 video and balanced/unbalanced audio and video inputs to 16, 12, 10, 8, 6 or 4 outputs (video and audio). The matrixes are controlled via RS-232 and/or RS485/422 communication ports. Just select the appropriate *COM* port. For more detailed information about various Kramer matrix switchers look up in: http://www.kramerelectronics.com

TIP (!) Use the ⊙*Remote mode* to send commands to the Kramer Matrix server. Thus, you could control one matrix from several ***AirBox*** channels simultaneously.

NOTE: This plug-in also supports all Kramer switchers that are protocol 2000 compatible, such as *Kramer VS-1201xl, VS-1001xl, VS-801xl, VS-601xl, VS-401xl* and *VS-1211, VS-1011, VS-811, VS-611, VS-411*. They provide switching between 12, 10, 8, 6 or 4 video and balanced/unbalanced audio inputs to one output (video and audio).
Please check your switcher manual for instructions on how to change the control protocol or contact support@playbox.tv .
IMPORTANT: PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

➢ *Leitch Matrix Switcher Output*



AirBox can control Leitch Matrix Switchers either through the computer COM port or using the IP address of the matrix (via TCP/IP protocol). The configuration window is divided into three areas – one per each mode. For the ⊙*COM port mode* you should set:

COM Port – the *COM*-port you will use for connecting to the switcher. All available *COM*-ports are listed in the drop-down list.

Baud rate – set the information carrying capacity of the port measured in bits/s

Read delay – the delay between the command given to the matrix switcher and its execution. By default it is 50 msec. and it is not recommended to change this value.

Read timeout – the time for which the switcher reports status.

If you choose to control the matrix via the TCP/IP protocol, check ⊙*Telnet mode* and enter the relevant *IP Address* in the bottom of the configuration dialog.

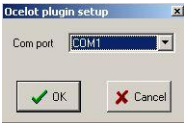
Check the factory-provided User name and Password and type them in the relevant strings.

TIP (!) The default user/password for Leitch Integrator is Leitch/Leitch. For the Panacea series these are Leitch/Leitch Admin respectively.

The ⊙*Internal server mode* is used to send commands to the Leitch Matrix Server. The Matrix Server is an add-on application, which provides possibilities to control one matrix switcher from several ***AirBox*** channels simultaneously. In the *IP address* field type the address of the machine, where the Switcher server is. Below, enter the Port you will use to connect the switcher.

➢ *- Net Sender Output* – a plug-in that allows you to send any text message via UDP. The parameters of this plug-in are set during event insertion. Please check the relevant Edit menu ➔ Add section for further details.

➢ *Ocelot Switcher Output*



Another make of switchers supported by ***AirBox*** are the Ocelot switchers. The only thing you can set in their configuration window is the *COM port* used for connecting to the switcher. You will find the available COM ports in the drop-down list.

IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

➢ *TitleBox Net Control output*

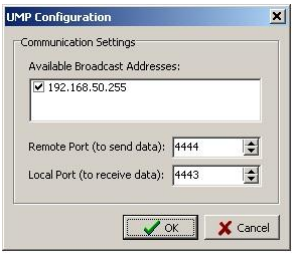
This function allows managing the ***TitleBox*** objects from ***AirBox***. This is done by inserting external events (*TitleBox NetControl Output* events) in the playlist.

Press the **Configure** button to configure further the ***TitleBox*** control. You can set the connection port for this UDP communication (it is set to 8012 by default). If in your network there is more than one TitleBox controlled through ***AirBox***, set the ***TitleBox*** channel, to which ***AirBox*** commands should refer. If you check Broadcast, the commands will be sent throughout the entire network. If unchecked, the commands will be sent only to the specified TitleBox Server.

For a detailed step-by-step guide on how to integrate ***TitleBox*** with ***AirBox*** look up in *APPENDIX 4 – Integration of AirBox with TitleBox* .

(!) TIP: Go to the Edit menu section of this chapter to check how to insert TitleBox Net Control commands in the playlist.

➢ *Universal Matrix Plug-in*



This plug-in is related to usage of the **Universal Matrix Controller *(UMC)*. More about it, you can read in *Universal Matrix Controller*** section, further in that manual.

The **UMC** is a **server** application installed on a separate server(s). It is an intermediary in the communication between ***AirBox*** and the video matrices in the local network. It communicates with all type of matrices known from ***AirBox*** - Kramer Switcher, Elpro Switcher, Acapella, Concerto, etc.

In the near future, the **Universal Matrix Plug-in** will replace all currently existed matrix plug-ins in ***AirBox*.**

Communication settings:

- ***Broadcast addresses*** - The UMC automatically scans the network and locates the available broadcast addresses. You may enable or disable broadcasting to specific address by checking / un-checking the respective checkbox.
- ***Ports***: The default port for sending data to the clients is **4443**. The default port listened by UMC is **4444**.

➢ *Video Resize Control Output*

This is an event that ensures automated scaling of the video output for Bloomberg-style layouts. Presses the ***Configure…*** button to open the **Set-Up** form and create your video resize presets.

For more information, check ***AirBox*** **Edit** menu ➔ **Add** ➔ **Events** → *Video Resize Control Output* section above in this chapter.

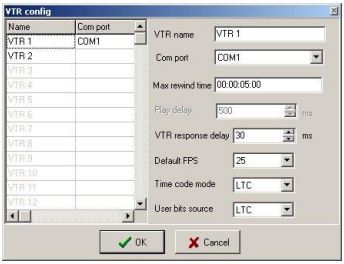
➢ *VikinX Matrix Switcher Output*

Pressing the ***Configure…*** button while the **VikinX Switcher** row is selected will evoke a setup dialog where you can define:

COM Port – Use the drop-down list of available *COM*-ports to select the one that will be connected to the switcher.

Read delay – the delay between the command given to the switcher and its response. By default it is 50 msec. and it is not recommended to change this value.

➢ *VTR Control Plug-in*



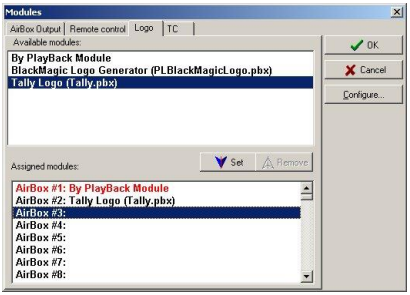
You can use it to control up to two VTRs for combined file based/tape based playout. Enable it and press Configure. The following dialog will open for you to make the necessary setting. First, enter the VTR name and the COM port to which it is connected. Then, specify the maximum rewind time. Please, note that in the playlist, you do not have to insert VTR events that are overlapping in relation to the maximum rewind time!

Below, you can make some VTR-specific fine-tuning – Play delay and VTR response delay.

Further, set the default frame rate of the output. Finally, specify the time code mode and the user bits source.

For details on how to insert VTR control events in the playlist, please see the relevant **Edit** menu section above.

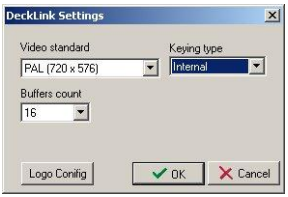
III.4.3.1. Logo



This option allows displaying a logo over the clips played in ***AirBox.*** You may select a logo source from the list and assign it to the appropriate ***AirBox*** channel.

➢ *By Payback Module* – this is an internal logo generator that keys the selected logo over the output video. This is the options to be used in most cases.

Pressing the *Configure button* while will open the *Logo configuration* dialog box, where you can define *Logo Presets* to be used later in ***AirBox*** (see the **Logo** section of the **Settings** menu description, further in the manual).



➢ *BlackMagic Logo Generator* – this is the plug-in to be used if you want to key logo over a pass-through video while ***AirBox*** is running on another plug-in.

IMPORTANT: You CANNOT use the same DeckLink board for playback and logo insertion in the same time!

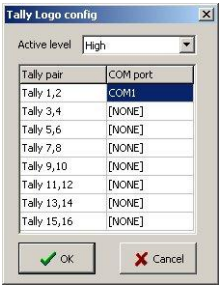
Pressing the ***Configure*** button will open the DeckLink Logo generator settings. Here you can specify adjust several settings:

Video standard – to define the output resolution (including HD if the installed DeckLink board supports it);

Keying type - should be set to [Internal] in order to display logos over the pass-through video. If you choose [None], only the pass-through video will be displayed on the output of the DeckLink board.

Buffer count – this is the number of frames to be kept in the graphics frame buffer.

WARNING! Please do not change the default buffer count unless advised so by our support staff.



➢ *Tally Logo* – this plug-in will raise or lower the output voltage on a specified COM port when playback reaches a logo event line. This is designed to control external logo generators that support GPI input.

As only two pins on a COM port can be used for the GPI output, you can have only two different logo commands per port. Thus, you will be able to switch between Logo 1 and Logo 2 on COM 1; Logo 3 and 4 will be assigned to COM

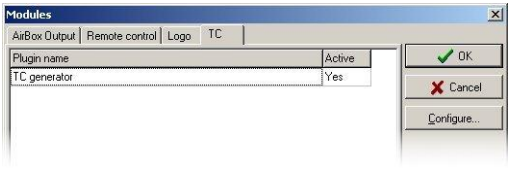
2, and so on.

The pulse level is defined in the *Active level* drop-down menu. It is used to control the logo ON and logo OFF commands. For example, if the active level is [High], a Logo ON event turns on the output voltage, and a Logo OFF event turns off it.

IMPORTANT: No logo will be displayed on the ***AirBox*** output!

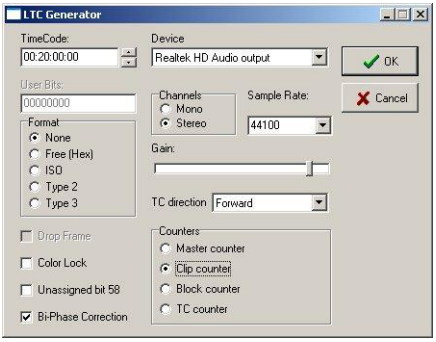
Press ***Configure*** while the Tally logo is selected to setup the COM port for outputting the GPI pules.

III.4.3.2. TC Generator



This plug-in allows outputting LTC on the ***AirBox*** server sound card. Thus, you can synchronize external devices to the time code coming from ***AirBox***.

To enable this plug-in, double-click in the **Active** column to the right.



AirBox can output time code from most of its counters. You have to press ***Configure*** to select it. The available *Counters* are listed in the lower-right corner of the LTC Generator dialog. You can choose the counting mode (for counters that support this feature) in the *TC direction* drop-down list.

Above, you can choose the output *Device* and set the output channel type and sampling rate.

The left-hand side of this dialog contains some basic LTC-related settings:

Time Code – this string shows the currently running timecode.

User Bits – Depending on the selected User Bits format (see below), you can preview and edit the output user bits here.

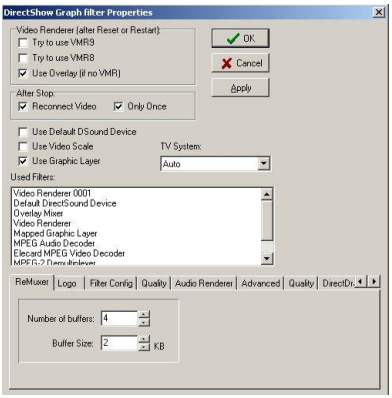
Format – these options are User-bits-related and reflect the most widely-used standards.

III.4.4. Output

This window contains information about the settings of the currently active plug-in and allows its fine-tuning. The Output Setup dialogs may vary depending on the decoders' models. Usually these settings are done at the factory, so you do not have to adjust them unless advised by our support personnel.

NOTE: The following descriptions are for reference only.

III.4.4.1. Soft MPEG2 Playback



This dialog contains a lot of settings. You do not have to change most of them, unless advised to by someone from our support team. Most of these are for diagnostic purposes ONLY. The Properties dialog of the software plug-in is figuratively divided into several fields.

The first one is dedicated to Video Renderer settings after Reset or Restart.

☑ *Use overlay (if no VMR)* should be checked if you're going to output TV signal through the VGA card. Check Try to Use VMR9 for HD.

After Stop – define the behavior of the plug-in at ***AirBox*** Stop command in this field. (Direct-Show related)

☑ *Reconnect Video* – video pin will be reconnected at each stopping of AirBox.

☑ *Only once* – the video pin will be reconnected only at the first Stop instead of after each stop command.

Below are situated three check-boxes for additional settings of the software plug-in:

☑ *Use Default DSound Device* – if you have more than one audio device and you do not want to output the sound coming from ***AirBox*** to all of them, check this box and it will be heard only on the default device.

☑ *Use Video Resize* – check it to enable video resizing.

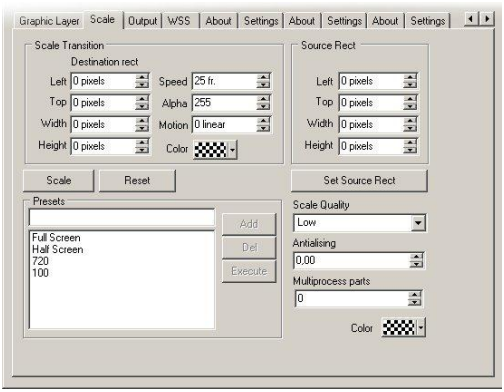
☑ *Use Graphic Layer* – check it if you are going to insert graphics over the video.

The TV system drop-down list contains all supported TV standards. Select the one you use there.

All filters used in the application graph are listed in the *Used Filters* section.

IMPORTANT: Any changes to the above settings are reapplied ONLY after restarting ***AirBox*** or pressing the Reset Hardware button.

The tabs in the lower part of the window contain specific filter settings that should not be changed. The description below is only for your reference!



The ***Scale*** page provides options for resizing the video on the output.

The *Scale Transition* filed contains seven spin-boxes and a *Color* palette. The latter is used to define the background color that will surround the resized video.

Left – the distance from the left margin of the screen, measured in pixels.

Top – the distance from the top margin of the screen in pixels.

Width – the horizontal size of the video in pixels.

Height – the vertical size of the image, measured in pixels.

Speed is the time for transition from the original image size to the scaled image size, measured in frames.

Alpha – use this spin-box to set the transparency of the scaled video. It has 256 levels, where 0 means totally transparent and 255 means totally solid.

NOTE: The transparency is visible only if there is a pass-through video signal in the background. As in the Software plug-ins and in IP Stream Payback plug-in there is no option to have such a pass-through signal, this setting is not applicable for them. Transparency is applicable only on hardware decoders.

The *Motion* spin-box is designed to select the pattern of movement during transition from the original size to the scaled size:

[0 linear] – The transition from original to scaled size will be made at constant speed.

[-1 descending] – The transition from original to scaled size will be made at higher speed at the beginning of transition and at lower speed towards the end of the transition.

[+ 1 ascending] – The transition from original to scaled size will be made at lower speed at the beginning of transition and at faster speed towards the end of the transition.

The number in front of the motion type represents the degree of changing the speed of transition.

Scale – press this button to apply the scaling settings immediately.

Reset – press this button to return to the original image dimensions and position.

You can create scaling *Presets* and view them in the list below:

Create a scaling preset, type its name in the string and press ***Add*** to save it in the list.

To remove a preset from the list, select it and press ***Del***.

Execute – when a scaling preset is selected in the list to the left, press this button to apply it to the output video.

The *Source Rect* field contains several spin-boxes to be used for cropping the original video. The transition settings will be applied to the cropped image (if any crop has been set).

Left – how many pixels should be removed from the left side of the image.

Top – how many pixels should be removed from the top side of the image.

Width – to setup the horizontal size of the output video.

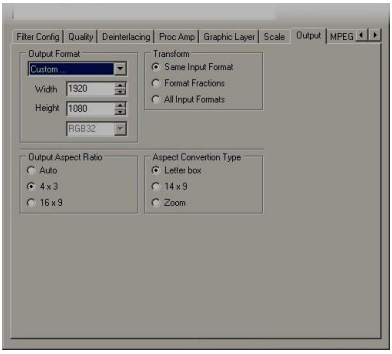
Height – to setup the vertical size of the video.

Set Source Rect – this button will apply the above set cropping immediately.

The *Scale Quality* drop-down list contains several presets for the speed of scale rendering. Currently Low has proved to be the most efficient value for this setting, so please do not change it to other.

The *Antialiasing* spin-box can be used to sharpen or blur the video.

Using the *Multiprocess parts* spin-box you can divide the scaling process into several parts- each one of them, assigned to a processor (this is depending on the number of the processors in your machine).



The ***Output*** tab is designed for setting the output video format and converting the source video formats.

Select which source formats will be processed in the *Transform* field:

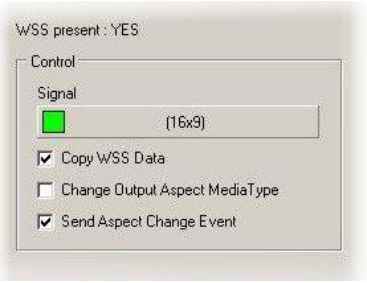
⊙*Same Input Format* – only videos that have resolution as the one set in the *Output Format* field will be converted.

⊙*Format Fractions* – only videos with height similar to the Output Format will be transformed (for example if the output format is D1, videos that are Half D1, 2/3 D1, etc. will be converted.

⊙*All Input Formats* – all source formats will be processed.

Below are situated the conversion options. You can force the *Output Aspect Ratio* to 4:3 or 16:9, or leave it on Auto. ⊙*Auto* means that the source aspect will be preserved.

Depending on the other settings and the differences between the source video and the desired output format, adjust the appropriate *Aspect Conversions Type*.



WSS tab- WSS stands for Widescreen Signalling - this is the digital stream, embedded in the video signal that carries the information about the Aspect Ratio of the currently represented image. It is situated in the first visible row of each frame. This is a code, containing descriptions. When the receiver reads these descriptions, it understands in what kind of aspect to represent each picture (4:3 or 16:9). This tab contains the following settings:

WSS Present – provides information on whether there is a component, which can read the WSS or not.

The

Signal square in the *Control* field keeps you informed about whether there is a signal. If it is red, there is no WSS stream. If it is green, in the brackets there is information about the aspect of this signal.

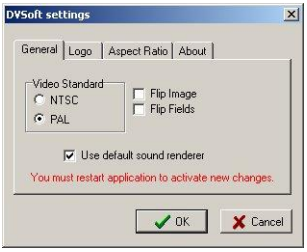
If ☑*Copy WSS data* is checked, the WSS will be copied to the right place in case of scaling. It won't be scaled with the video, but will be present at the first row.

☑*Change Output Aspect Media Type* - use it to change the samples media type in the DirectShow Graph.

☑*Send Aspect Change Event* - provides an option that allows other programs to know when the aspect is changed. For example, if this check is activated, each time when there is a change to the WSS type, ***TitleBox*** will read this "event" and will automatically change the aspect of its own objects (such as rolls and crawls, etc.). Thus, it represents the objects with their correct aspect.

NOTE: This is in case ***AirBox*** and ***TitleBox*** are working on the same machine.

III.4.4.2. Soft DV Playback



This plug-in is used for playout of DV compressed files. The setup dialog consists of three tabs.

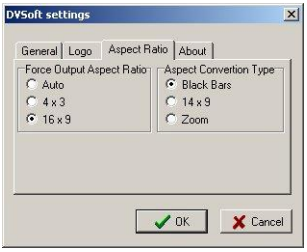
In the ***General*** tab are situated the audio- and video-related settings: you can set the video standard, fields order and image position.

IMPORTANT: The fields of all clips will be flipped, so do not mix files with different field order in the same playlist!

☑ *Use default sound renderer* will output the sound on the PC audio card. If this box is not ticked, the Sound will be output on the audio devise specified in Windows Settings ➔ Control Panel ➔ Sounds and Audio Devices.

This setting is applicable if there is some hardware decoder on the PC and you would like to output the sound through it.

The ***Logo*** tab contains two spin-boxes for setting the fade effect on showing and hiding the logo off the screen.



The ***Aspect Ratio*** tab contains settings about the output aspect ratio. It provides the following options:

⊙***Auto*** – this will preserve the original aspect of the source file.

⊙***4 x 3*** – it will force 4:3 aspect to all source files. When 4x3 is selected, you can choose the *Aspect Conversion Type* (how to process files that have different aspect ratio) at the right:

⊙*Letter Box* – if the source file has aspect 16:9, two horizontal black bars will be added above and under the video to fill-up the remaining part of the screen. The horizontal size of the video is preserved.

⊙*14x9* – small parts on the two sides of the video will be left out of the screen. Two thinner black bars will appear on the top and in the bottom of the screen.

⊙*Zoom* – the vertical size of the picture will be preserved. The video will be cut equally at its both sides.

⊙***16 x 9*** – it will force 16:9 aspect to all source files. You can specify the way to process files with different aspect ratio in the *Aspect Conversion Type* field to the right:

⊙*Black Bars* – if the source file has 4:3 aspect, two vertical black bars will be added on both sides of the video to fill up the remaining part of the screen. The vertical size of the video is preserved.

⊙*14x9* – small parts in the top and the bottom of the video will remain off the screen. Thinner black bars will appear on both sides.

⊙*Zoom* – the horizontal size of the video will be preserved. Video will be cut equally on the top and in the bottom.

NOTE: The Aspect Conversion will not result in image deformations. It just cuts certain parts of the video.

III.4.4.3. Soft Mixed plug-in

While other plug-ins are MPEG-2 only or DV-only compliant, the Mixed playout plug-in allows mixing files of different compressions and frame rates in the same playlist.

The adjustments provided here are the same as with the Software-based **BlackMagic Mixed Playout Plug-in**, descried further.

NOTE: This plug-in supports **transitions** between clips in the playlist. Please, check the clip properties description for details.

III.4.4.4. DataPump MPEG Program Dumper

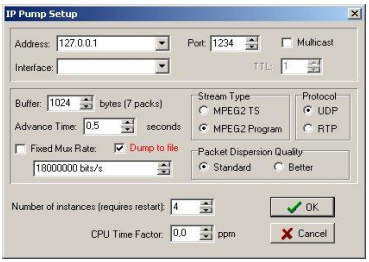
This Plug-in is used for dumping the playlist into a single *MPEG2* file.

Pressing the play button will open a browse dialog for saving the resulting file.

There are no setup options for this plug-in.

NOTE: This feature works faster than the real-time. For example, a 15-minute playlist compiles as a single file for less than 10 minutes. The speed depends on the *HDD* performance and the input/output stream configuration.

III.4.4.5. IP Pump MPEG Program Dumper



It is an optional playback plug-in that streams the content that is being played out to a network IP address. The IP Pump uses a standard UDP mechanism for data transfer.

In the *Address* field, enter the IP address of the remote machine to receive the stream. If you check *Multicast*, i.e. streaming to multiple machines, you will have to enter a special multicast address in the *Address* field. Usually its first three digits are in between 224 and 239.

If you have more than one network connections, specify which one should be used for the streaming in the *Interface* string. If you leave it empty, ***AirBox*** will stream through all available interfaces.

In the *Port* field, define which communication port will be used for the streaming. By default it is 1234.

TTL stands for time-to-live for the Internet packets. This spin-box is active only if the ☑*Multicast* box is checked. The higher the *TTL* value, the longer the packets will "live" and pass through more routers. By default it is "1" which is enough for local networks.

In the *Buffer Size* field, you can specify the size of the IP packets to be sent along the network. It should be multiple of 188 bytes which is the size of an MPEG-2 TS packet.

The *Advance time* value represents the maximum time for buffering before initiating the streaming.

Use the ☑*Dump to file* checkbox is for recording the playlist to a file.

☑ *Fixed Mux Rate*: This check forces the plug-in to output a stream with fixed bit rate. This is done through zero packets, also known as "stuffing packets". Applicable for transport stream output only!

NOTE: Mux rate must be set at least 10% higher than the highest content bitrate.

Protocol – now RTP is supported along the UDP protocol. RTP is considered a more professional choice because of the time stamping in the packets' headers. Applicable only for transport streams!

Packet Dispersion Quality - as the name states, this forces the plug-in to output better dispersed packets. This means that the jitter will be much lower thus producing a more "professional" stream. ⊙*Better* should comply with the standard – MPEG-2 Real Time Interface Specification (ISO/IEC 13818-9 [65]).

If you have multiple channel licenses, specify their number in the spin-box in the bottom of this dialog. Thus, you will be able to see the same number

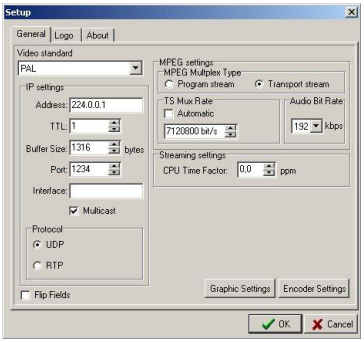
of IP pump plug-ins in **Settings ➔Modules ⇨ *Output***. By default there are four IP pump plug-ins there.

CPU Time Factor – in IP Pump we use the CPU clock to generate the PCRs of the Transport Stream. Enter the value from the stream analyzer here to compensate the inaccuracy of the CPU clock frequency.

WARNING! Consult your network administrator prior to changing the network-related settings.

NOTE: There is no overlay preview with this plug-in!

III.4.4.6. IP Stream MPEG-2 Playback



The IP streamer setup dialog consists of three tabs:

- The ***General*** tab contains most of the settings available for this plug-in.

A drop-down list in the upper left corner provides options for video standard selection.

Below, you can find the network-related settings:

Address – enter the IP address of the remote machine to receive the stream. If you check *Multicast*, i.e. streaming to multiple machines, you will have to enter a special multicast address in the *Address* field (the multicast addresses are in the range between 224.0.0.0 and 239.0.0.0.

TTL stands for time-to-live for the Internet packets. This spin-box is active only if the ☑*Multicast* box is checked. The higher the *TTL* value, the longer the packets will "live" and pass through more network routers. By default TTL is set to "1" which is enough for local networks.

Buffer size – in this spin-box you can specify the size of the IP packets to be sent along the network. This size should be multiple of 188 bytes which is the size of an MPEG-2 TS packet. We recommend 1316 bytes buffer size which will comply with the standard network MTU.

Port - define which communication port will be used for the streaming. By default it is 1234.

Interface - if there are more than one network cards in the PC, specify which one should be used for the streaming in this string. If you leave it empty, ***AirBox*** will stream through all available interfaces.

Multicast – check it to stream to all PCs in the network.

The MPEG stream settings are situated in the right side of the window. There are two options for the *Multiplex Type*: Program or Transport stream.

When ⊙*Transport stream* is selected, the *TS Mux Rate* spin-box becomes active so you could select ☑*Automatic* of fix the Mux rate manually. *Audio Bit Rate* is adjustable for both stream types. It is 192kbit/s.

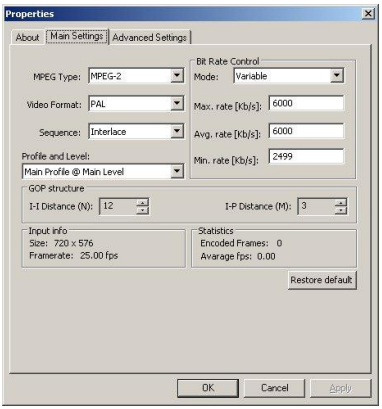
Protocol – If you choose ⊙*Program stream*, the protocol will be switched automatically to ⊙*UDP*. With ⊙*Transport stream* you can choose between UDP and RTP.

CPU time factor – similar to IP Pump, in IP Streamer we use the CPU clock to generate the PCRs of the Transport Stream. Enter the value from the stream analyzer in this spin box to compensate the inaccuracy of the CPU clock frequency.

☑*Flip fields* – if for some reason the field's order of your content is wrong, check this dialog to rectify the output.

IMPORTANT: The fields of all clips will be flipped, so do not mix files with different field order in the same playlist!

Pressing the ***Encoder Settings*** button will open the setup dialog of the MainConcept MPEG-2 Video Encoder. It consists of three tabs: About, Main Settings and Advanced Setting.



The ***Main Settings*** page contains basic stream settings:

In the *MPEG Type* drop-down list are listed all MPEG video compression types available in the Main Concept encoder.

The *Sequence* drop-down list provides two options for video scanning: Interlace (each frame divided into two fields) and Progressive (25/29.97 whole frames per second).

Below, you can choose the encoding profile and level.

To the right is situated the Bit Rate Control field. In it, you can specify the bit rate mode: Constant, Variable or Constant Quantization. Below are the specific bitrate values strings.

In the GOP structure area, you can specify the GOP size (N) and the reference period (M).

The ***Advanced Settings*** page contains more sophisticated options that should not be changed unless advised by our support team!

Pressing the ***Graphic Settings*** button will open the setup dialog of the DMT graphic layer filter. This dialog contains three tabs: Graphic Layer, Scale and Output. All settings in it require ***AirBox*** restart or at least pressing the ***Reset Hardware*** button in the main ***AirBox*** window to apply.

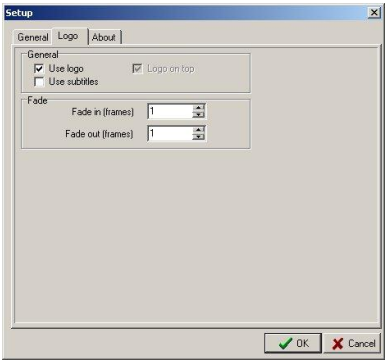
The ***Graphic*** layer tab is used for service purposes, so please do not change anything there. The ***Scale*** and ***Output*** tabs are described in the Soft MPEG2 plug-in description above.

In the ***Logo*** tab, there are several settings related to the logo and subtitle insertion in the output.

In the *General* filed above, you can enable using logo and subtitles.

When both logo and subtitles are enabled, a third check-box becomes active. Check ☑*Logo on top* to make sure the logo will not stay beneath the subtitles in case they overlap.

Below you can set the number of frames for the logo fade effect.



IMPORTANT: There will be no fade for the logo when using both subtitles and logo!

III.4.4.7. IP H.264 Stream [MPEG-2 Playback]

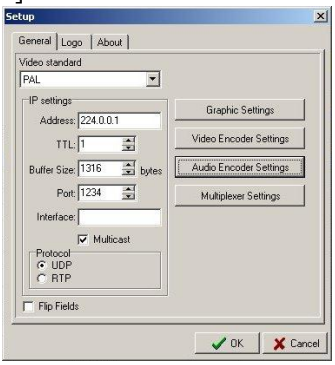
The main output dialog consists of three tabs: General, Logo and About.

The ***Logo*** tab is the same as the one in the IP Stream MPEG-2 plug-in, described in the previous page.

In the ***About*** tab, you can view information about the current plug-in version.

The most important settings are in the ***General*** tab.

The IP settings are the same as in the IP Streamer plug-in, described above.

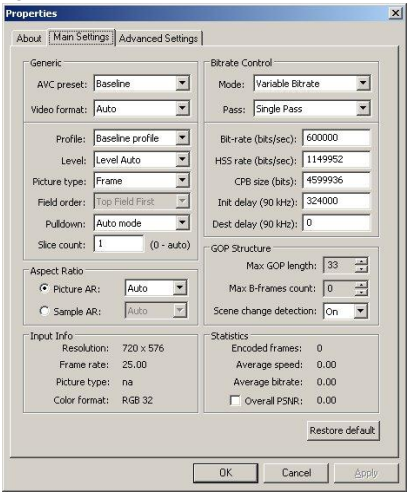


IMPORTANT: The fields of all clips will be flipped, so do not mix files with different field order in the same playlist!

Pressing the ***Graphic Settings*** button will open the properties dialog of DMT Graphic Layer filter. The ***Property Editor*** tab is used for service purposes; please do not change anything in it.

The ***Scale*** and ***Output*** tabs are described in the Soft MPEG2 playout section above. Please, check it for details.

Pressing the ***Video Encoder Settings*** button will open the MainConcept's video codec properties dialog.



The H.264 standard provides a wide variety of compression techniques. The most common options are situated in the ***Main Settings*** tab, and the more sophisticated options can be found in the ***Advanced Settings*** tab. The latter are described in the H.264 standard, so please refer to it for details.

Here is a brief description of options found in the ***Main Settings*** tab, as specified in the MainConcept© SDK:

The *AVC presets* drop-down list contains Advanced Video Coding settings templates. This setting specifies the format of the output video elementary stream.

In the *Video format* list you can indicate the representation of pictures before being coded.

Below, you can choose among different profiles and levels, and specify the picture types (frame, field or MBAFF*).

* Macro Block-Adaptive Frame/Field coding.

Further down, you can specify the fields order (bottom or top first), and the *Pull-down* mode. Pull-down is applied for conversion when the source bitrate and the output bitrate are different.

Slice count defined the number of slices per picture.

In the *Aspect Ratio* field, there are two options:

⊙ *Picture AR* – to fix the aspect ratio of the whole picture;

⊙ *Sample AR* – to fix the aspect ratio of pixels in the output picture.

In the *Bitrate Control* field, there are two drop-down lists and several strings.

Mode – specifies the rate control mode (Constant, Variable or Constant Quantizer).

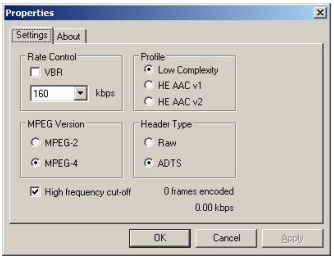
The *Pass* drop-down list is used to specify the multi-pass encoding mode:
Simple – encoding without gathering statistics
Analyze – encoding and gathering statistics for next pass
Encode – encoding using the gathered statistics and updating it.

Bit-rate (bits/sec) – specifies the average bit-rate (bits/sec) of the encoded video elementary stream.
HSS rate (bits/sec) – specifies the hypothetical stream scheduler rate (bits/sec) of the encoded video elementary stream.
CPB size (bits) – specifies the size of coded picture buffer in bits.
Init Delay (90 kHz) - specifies the initial CPB removal delay in 90 kHz clock units.
Dest Delay (90 kHz) - specifies the destination CPB removal delay in 90 kHz clock units.

In the *GOP Structure* field, you can set:
Max GOP length – the maximum length of any Group Of Pictures. Larger numbers frequently provide better compression. Smaller numbers provide better error recovery and better access to the frames for editing.
Max B-frames count – the maximum number of *B frames* in a GOP. Some decoding situations such as video conferencing may require "no B-frames" for providing low communication delay.
Scene change detection – enables/disables the scene change detection.

In the lower right corner of the *Statistics* filed is situated the ☑ *Overall PSNR* check box. It enables/disables measuring the Peak Signal to Noise Ratio. This requires some CPU resources, so check it only if you need this statistics.

Pressing the ***Audio Encoder Setting*** button will open the MainConcept's AAC Encoder© properties dialog.



The *Bitrate Control* specifies the average output audio bitrate; the *Profile* sets the object type; and the *Header type* sets the output bit stream format (raw or with ADTS headers).
Check ☑ *High frequency cut-off* to reduce the encoded data.

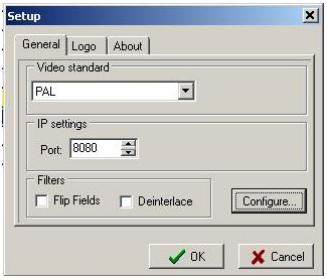
Pressing the ***Audio Encoder Settings*** button will open the MainConcept's audio codec properties dialog.

Pressing the ***Multiplexer Settings*** button will open the MainConcept Multiplexer© properties dialog. You can view the parameters of the output MPEG-2 TS stream in it.

III.4.4.8. IP WMV Stream

This Plug-in allows streaming Windows Media Video streams trough the LAN card of your ***AirBox*** server. Still, the playlists you use must contain MPEG-2 – encoded files only.

Its settings are organized in three tabs – ***General, Logo, About***



The ***About*** tab displays some information about the current plug-in version.

In the ***Logo*** tab, you can enable the use of logo and adjust its fade effect.

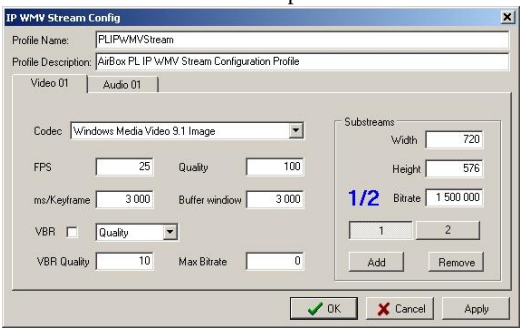
The ***General*** tab contains the basic settings of the plug-in:

Video Standard – you have to specify the TV standard of the source media.

In the *IP settings* filed, define the port to be used for streaming.

Below, there are two checkboxes for filters. Check *Flip Fields* to flip the field and check *Deinterlace* to have deinterlazing.

Press ***Configure*** button tabs for video/audio encoder set-up.



In the ***Video*** tab, you can choose the video Codec and other video parameters.

In Substreams area, set the output stream Bitrate, as well as the *Width* and *Height* of the output.

If you want to create another output stream, but with different *Bitrate*, press *Add* button. A new numbered button will appear. Press it and select new streams settings.

It is possible to define up to 8 streams.

In the ***Audio*** tab, you can choose the audio Codec to be used, as well as the audio format.

IMPORTANT: This plug-in requires installing Windows Media Format Runtime files versions 10.0 or later in order to operate properly.
NOTE: You can insert only MPEG-2 files in your playlists!

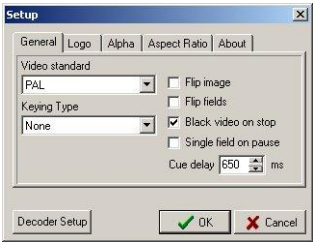
III.4.4.9. Mixed IP WMV Stream

This plug-in was designed to allow our users stream Windows Media Video streams to the network. The difference when compare to the IP WMV streaming plug-in is that the IP WMV streamer supports only MPEG-2 compressed files, while in Mixed IP WMV streamer you can use all supported file formats in the same playlist (MPEG-2, DV, MXF, DivX, etc.).

Output settings here, in Mixed IP WMV , are identical to these described above for IP WMV. Please, check the details there.

NOTE: This plug-in requires installing Windows Media Format Runtime files versions 10.0 or later in order to operate properly.
IMPORTANT: 24-bit audio is not supported!

III.4.4.10. DeckLink MPEG2 Output



The BlackMagic MPEG2 module settings dialog contains four tabs.

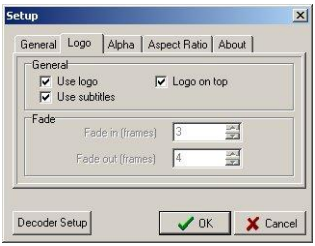
The name of the ***General*** tab implies that there are some basic settings in it – you can select the *Video standard* and *Keying type* from the drop-down lists to the left, and then make some additional settings:

☑ Flip image – check it to rotate the video 180 degrees.

☑ Flip fields – check it if you need to change the fields order.

☑ Black video on stop – in case you leave this box un-checked, the last shown frame will remain on the output after stopping the playback.

☑ Single field on pause – use it to avoid "flickering" of the video caused by showing the two fields of a frame during pause.

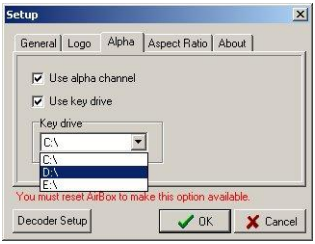


Into the ***Logo*** tab you can find some basic settings for having logo or subtitles (or both) on the BlackMagic MPEG2 plug-in

In the *General* filed, you can enable/disable the usage of logo, subtitles or both. When both logo and subtitles are enabled, a third check box becomes active –check ☑*Logo on top* if you would like the logo to be superimposed over subtitles in case they overlap.

You can adjust the logo fading effect (by changing the transition time in frames) in the *Fade* field below.

NOTE: There will be no fade effect when using logo and subtitles simultaneously!

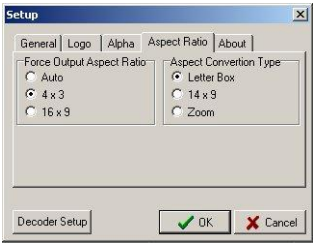


Open the ***Alpha*** tab if you need to:

- do external fill-and-key and you need the alpha channel output on the second SDI output on a DeckLink PRO decoder
- do internal fill-and-key over a video signal fed on the inputs of a DeckLink card, where possible.

First, enable the use of alpha channel. Then, if your key files are on another drive, check ☑*Use key drive* and specify it in the drop-down list.

NOTE: The folder structure of the key drive should be identical to the one of the video drive and the file paths of the key files should be the same as those of the video files.
NOTE: You CANNOT mix files with and files without alpha channel in the same playlist!
IMPORTANT: This functionality is still under development! It does not operate properly!



Aspect Ratio tab – here you can force the aspect ratio of the output video.

This tab provides the following options:

⊙***Auto*** – it will preserve the original aspect of the source file.

⊙***4 x 3*** – it will force 4:3 aspect to all source files.

When 4x3 aspect is select, you can choose the *Aspect Conversion Type* (how to process files that have different aspect ratio) in the right side:

⊙*Letter Box* – if the source file has aspect 16:9, two horizontal black bars will be added above and under the video to fill-up the remaining part of the screen. The horizontal size of the video is preserved.

⊙*14x9* – small parts on the two sides of the video will be left out of the screen. Two thinner black bars will appear on the top and in the bottom of the screen.

⊙*Zoom* – the vertical size of the picture will be preserved. The video will be cut equally at its both sides.

⊙***16 x 9*** – it will force 16:9 aspect to all source files.

When 16x9 is selected, you can specify the way to process files with different aspect ratio in the *Aspect Conversion Type* field to the right:

⊙*Black Bars* – if the source file has 4:3 aspect, two vertical black bars will be added on both sides of the video to fill up the remaining part of the screen. The vertical size of the video is preserved.

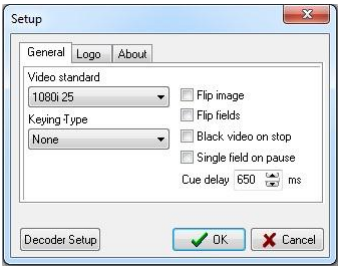
⊙*14x9* – small parts in the top and the bottom of the video will remain off the screen. Thinner black bars will appear on both sides.

⊙*Zoom* – the horizontal size of the video will be preserved. Equal portions will be cut off from the bottom and the top of the video.

NOTE: The Aspect Conversion will not result in image deformations. It just cuts certain parts of the video.

IMPORTANT: Scaling and Aspect Conversion use the same engine for video conversion. You CANNOT use scaling and output conversion simultaneously!

III.4.4.11. DeckLink HD MPEG2



There are two main tabs for the settings.

In ***General*** tab there are the basic settings:

Video standard - from the drop-down lists to the left, you can select needed video standard.

Keying type - you can select "**None**" or "**Internal**" keying type for the DeckLink card.

☑ Flip image – check it to rotate the video 180 degrees.

☑ Flip fields – check it if you need to change the fields order.

☑ Black video on stop – in case you leave this box un-checked, the last shown frame will remain on the output after stopping the playback.

☑ Single field on pause – use it to avoid "flickering" of the video caused by showing the two fields of a frame during pause.

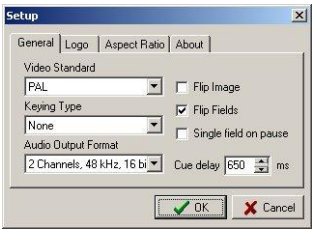
Into the ***Logo*** tab you can enable/disable the usage of logo or subtitles (or both) on the BlackMagic HD MPEG2 plug-in

When both logo and subtitles are enabled, a third check box becomes active –check ☑*Logo on top*. Chek it, if you would like the logo to be superimposed over subtitles in case they overlap.

You can adjust the logo fading effect (by changing the transition time in frames) in the *Fade* field below.

NOTE: There will be no fade effect when using logo and subtitles simultaneously!

III.4.4.12. Decklink DV Output



There are three main tabs in this setup dialog – ***General, Logo and Aspect Ratio.***

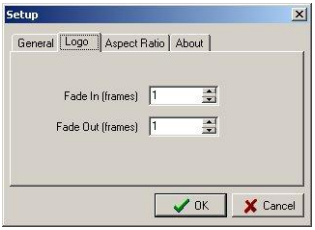
About is a standard tab, containing copyright and version information.

General is used for setting the **Video standard** (PAL/NTSC) and, optionally, **Flipping** of images and/or fields.

Check ☑ Single field on pause to avoid the flickering of the output image while in pause mode.

If you have purchased the multi-audio option, specify the *Audio Output Format* here. The multiple audio channels will be embedded in the SDI output of the decoder.

Pressing the ***Decoder Setup*** button will invoke the *Moonlight-Elecard* decoder-setting dialog (you do not have to change anything there, unless advised by someone from our support team).



In the ***Logo*** tab you can set the logo fade in/out duration in frames, and thus – to adjust the logo transition effect.

You can adjust the ***Aspect Ratio*** of the output in the corresponding tab. Please check the previous page for details.

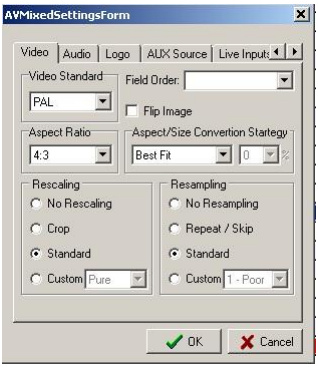
IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

III.4.4.13. DeckLink Mixed Output

While other plug-ins are MPEG-2 only or DV-only compliant, the Mixed playout plug-in allows mixing files of different compressions and frame rates in the same playlist.

The output settings are situated in several tabs: **Video, Audio, Logo, Advanced, AUX source, Live sources**

- ***Video*** tab



Here, you can define parameters of the ***AirBox*** video output. Settings will affect all files in the playlist!

-***Video Standard*** - specify PAL or NTSC video standard

- ***Field Order*** – corrects fields order.

- ***Flip Image*** - Check it to rotate the video at 180 degrees.

NOTE: *Flip Image* and *Flip fields* will affect all files in the playlist!

-Aspect Ratio – the aspect ratio of the video output.

-Aspect/Size Conversion Strategy - it is used to define how the output video will looks like, if the output aspect ratio is different than the aspect ratio of the clips. *For example*, if the default aspect is set to 4:3, and the clips into the playlist are with aspect 16:9.

The following settings are available:

Best fit – will keep the real size of the image. Two horizontal black bars will be added above and under the video to fill-up the remaining part of the screen. The horizontal size of the video is preserved.

Balanced Letterbox – the horizontal black bars will be smaller. Small parts on the two sides of the video will be left out of the screen.

Full screen/Zoom – the horizontal size of the video will be preserved. Video will be cut equally on the top and in the bottom.

Stretch – using this setting, there will be no black bars on the screen, but a little change in shapes form.

Custom – it is used for custom settings. When select it, the drop-down box at the right side of the ***Aspect/Size Conversion Strategy*** box becomes available. It allows you to adjust what part of the image and what part of the black bars will be visible in percentage.

For example, if you select 50 %, the result would be like "**Best Fit**" Aspect/Size relation.

100% - the result will be like *Full screen/Zoom.*

0% -. the result will be like *Balanced Letterbox*.

-Rescaling - In case the source file has different resolution then the output resolution, there might be some *Rescaling* of the video.

⊙*No Rescaling* – if chosen, there won't be rescaling.

⊙*Crop* – if the source file is with higher resolution than the output resolution, only the middle part of the video will be visible. If the input video is with lower resolution, the rest part of the output picture is filled with a black color.

⊙*Standard* – this setting corresponds to the "*Low"* from the *Custom list*.

⊙*Custom* – if pressed, the user has to choose type of quality from the drop-down list near the relevant radio-button.

NOTE: Working with higher video quality requires more CPU power.

-Resampling - In case the source video has a different frame rate, then the output one, the following *Resampling* options are provided:

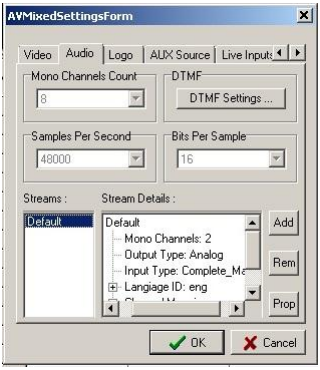
⊙*No Resampling* – there will be no resampling.

⊙*Repeat/Skip* – for example, if the output video standard is set to NTSC, but you have to play back a file, which belongs to the PAL standard, some frame will be repeated in order to stuff up the frame number to 30. By analogy, some frames could be skipped.

⊙*Standard* – corresponds to the "*9-Very High"* quality from the *Custom* list.

⊙*Custom* – if chosen, you have to select an item by your choice from the drop-down list near this radio-button

➢ ***Audio*** tab



Here you can define some settings about the audio output.

The **Mono Channels Count** field shows the number of available physical mono channels.

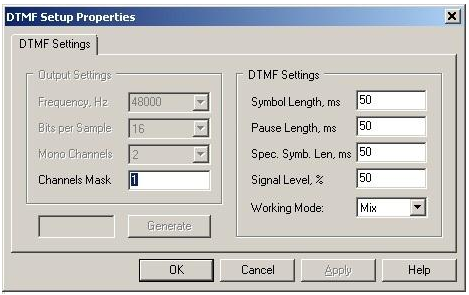
In ***Audio*** settings tab, you can define an output **DTMF** signal, which to be generated from ***AirBox*** application.

- Output settings. Here you can define the parameters of the DTMF tone – **Frequency**, **Bits per sample**, number of **Mono Channels** and **Channel Mask**.

Depending on the channel Mask, the DTMF

tone is sent to a specific audio channel. If Channel Mask is zero (0), the DTMF is not sent. If it is one (1), DTMF is sent to the 1st mono channel. If it is two (2), DTMF is sent to the 2nd mono channel

- DTMF setting:



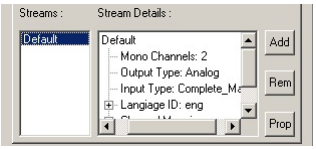
Length of the standard **Symbol** in DTMF sequence - **numbers from 0 to 9 and letters A, B, C, D.**

Pause Length – length of the pause between symbols

Specific symbols length - Specific symbols are all symbols into the DTMF strings different than numbers from **0 to 9** and **letters A,B,C,D.**

Level of the signal – the signal level in percent.

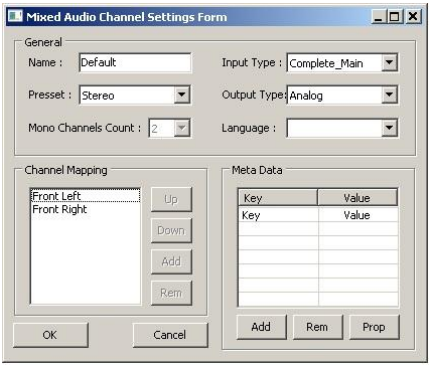
Working Mode - here you can define whether the DTMF to be **Mixed** with the output audio, or to **Replace** the output audio.



Into ***Audio*** settings tab, it is also possible to define the output audio **Streams** (audio tracks).

The list of streams is visible into **Streams** window. When select a stream from the list, into the next **Stream Details** window, you can see the details for this audio stream.

To define/remove/edit a stream, press respectively **ADD/REM/PROP** button at the right side of the window.



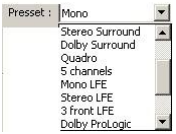
When press **Add** button, the set-up window will open.

Enter the name of the new stream in the **Name** field.

In **Presset** field, you can select a preset for a channel mapping from a drop-down list. Here you can see a list of the most popular channel mappings.

For example, if you select "Stereo", the channel mapping will consist: *Front Left* and *Front Right* channels. If you select "3 front LFE", there will be: *Front Left, Front Right, Front Center* and *LFE Subwoofer*.

Note: If a preset is selected, it is not possible to edit **Mono Channels Count** and **Presset** fields.



In **Mono Channels Count** enter the number of mono-channels included in this stream.

If you have selected some preset from **Presset** list, then the number of the mono channels appears automatically and you cannot change it.

If you select the **Presset** to be *Unknown*, then you can enter the number of mono channels by yourself and you can define your own channel mapping into **Channel Mapping** area.

By default, when you select some number of mono channels, into **Channel Mapping** you will see the most popular mapping for these number of mono-channels. *For example*, if you select 2 mono channels, the Mapping will consist: *Front Left* and *Front Right* channels. If the mono-channels are 4, the Mapping will be: *Front Left, Front Right, Front Center* and *LFE Subwoofer*.

You can delete one or more of these mono-channels by pressing **Rem** button from the right of **Channel Mapping** area.

Then you can add a new channel for audio mapping, by pressing **Add** button.

To change the order of channels, just select one of them and move it up or down in the list, by pressing **Up** or **Down** button.

Note: If you have selected some preset from **Presset** list, then you cannot edit **Channel Mapping**

In the **Input Type** field, you can select from a drop-down list a type of the sound in this audio stream, like “dialogue”, “music and effects”, “commentary”, “voice over”, etc.

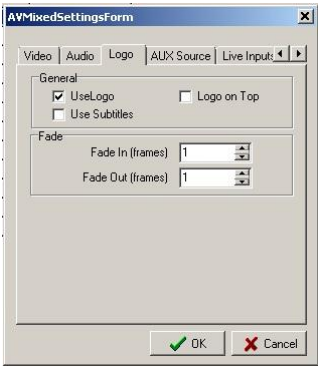
In the **Output type** field select the output **Encoding** method – *PCM*

The language of a sound could be selected in **Language** field.

Meta Data – this is a list of additional audio metadata for audio stream, defined by user. *For example* default volume, copyrights, etc.

You can Add, Remove or Edit metadata, if select it and press respectively **Add/ Rem** or **Prop** button.

When you are ready, press **OK** button at the bottom of the ***Mixed audio channel settings*** window. The new defined audio stream will appear in the stream list.



➢ ***Logo tab***

This tab contains two fields – *General* and *Fade*.

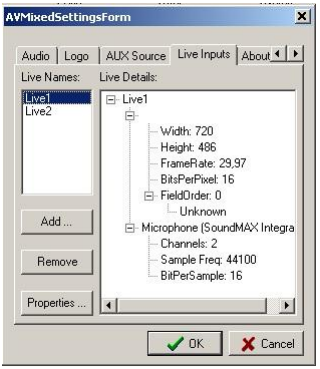
The first one contains the following check-boxes:

☑*Use Logo* – if not checked, the user won't be able to use logo.

☑*Use Subtitles* – check it to enable the usage of subtitles.

☑*Logo on top* – you can use it to avoid eventual overlapping of the logo and subtitles.

To adjust the duration of the Fade In and Fade Out effects when showing/hiding the logo, use the relevant spin-boxes, situated in the *Fade* field.



➢ ***Live Input*** tab

Here is defined an additional video source, if such is available. This Live video source will be used further as a source for Live event into the playlist or Picture-in-Picture feature.

Press the **Add** button and select the type of the live input source. It could be Capture Device, Color or UDP.

After selecting the live source and entering its name, press **OK** button and new setting window will open, depending on the type of the source.

NOTE: This *Live Input Name* is entered into ***Live event*** settings or ***PiP*** settings, in order to select a live video source.

Important: The *Name* is key sensitive!

Press the **Prop** button, if you want to change the settings for selected live source.

Press **Rem** button, to remove the selected live source.

If the live is source is Capture device, the following window will open:

Into **Video Device** field, select a device from a list of available for this workstation devices.

In the **Video Format** field select a video format from the list.

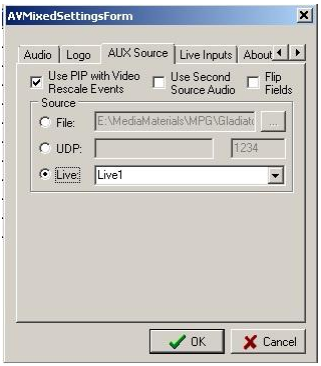
If it is needed, check the ***FlipFields*** checkbox.

Into **Audio** area select the **audio device** and **audio format** of a live source.

If the selected live source is **Color**, the dialog for setting a color will appear. You have to specify values for the three main colors (Red, Green, Blue), in order to define your preferred color.

If the selected live source is **UDP,** a dialog for entering an IP address and port number appears**.**

➢ ***AUX Source*** tab



There are settings for using an additional video source. There are three possible AUX sources:

- previously prepared file – you need to enter its location here;
- UDP stream – enter the IP address and port;
- live video – video signal coming from **Live Input**, as it is defined in ***Live Input*** settings window. Here you have to enter the name of the live source, exactly like it is entered in the ***Live input*** window.

The additional video source is usually used for creating Picture-in-picture (PiP).

To allow the PiP functionality, you have to check the ☑*Use PIP with Video Rescale Events* box. The video files from the playlist will be treated as a background video. The live source video will be resized according to the settings made within the *Video Resize Control event* (for more information, please, check the Video Resize Control Output description).

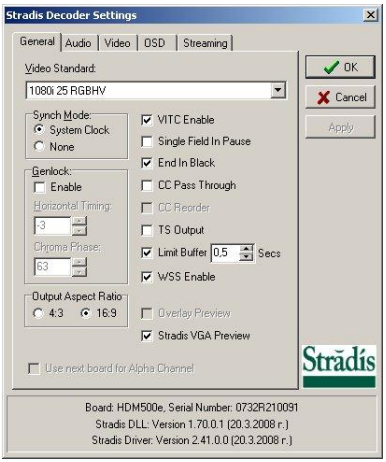
NOTE: Keep in mind that when creating the resize control event, you have to specify offset at least 1 sec (1000ms).

Check the ☑*Use Second Source Audio* box if you want the output audio to be the one, coming from the AUX source.

IMPORTANT: It is recommended the live stream video standard and fields order to be similar to the playlist input video.

NOTE: This plug-in supports **transition** between clips in the playlist. Please check the clip properties description for details.

III.4.4.14. Stradis MPEG-2 Output



The Stradis set-up dialog contains five tabs related to the different features of the output signal.

➢ Into the ***General*** tab, you can find the following settings:

- *Video standard* – to define the output standard: *PAL /NTSC /Auto/ HD* (the list of available standards is hardware-dependant).
- *Synch Mode* (active only when no file is open)

⊙*System Clock* – Uses the presentation Tamp Stamps to synchronize video and audio. The audio decoder compares the audio PTS, when encountered, with the STC, and corrects the audio if the difference between the two is more than five milliseconds. The correction duplicates or skips samples periodically until the audio PTS is within the five-millisecond window.

⊙*None* – Audio and video are started within a half frame. No further synchronization is performed. However the audio and video clocks are locked together.

- *GenLock* – ☑Enabling it locks the output video sync to the input video sync.
- *Output Aspect Ratio* – here you can define the aspect ratio of the output video:

⊙ *4:3*. When 4:3 is selected and a stream coded as 16:9 is displayed, a 4:3 image in the proper aspect ratio is displayed using pan and scan information, if available. If no pan and scan information in the stream, the left-most portion of the 16:9 image is displayed.

⊙ When *16:9* is selected, no action is taken, regardless of the stream type.

- *VITC Enable* – Places the SMPTE timecode in the vertical interval in accordance with SMPTE 12M-1999. As outlined in SMPTE RP 164, VITC is placed on lines 14 and 16 for NTSC and on lines 19 and 21 for PAL.
- *Single Field In Pause* – Using this option will eliminate interlace artifacts when paused. Check it to avoid possible "flickering" of the paused frame.
- *End in Black* –to show a black frame on stop
- *Overlay preview* – to enable the video overlay window

- *CC Pass Through* – Closed Captions are decoded assuming that they were placed in the stream sequentially without regard to the actual frame with which they were originally associated. In this mode, the decoder simply passes the Closed Caption data as it is received and does not re-order them.
- *TS Output* – use it when streaming. If left un-ticked, the output stream will be MPEG2 Program stream.
- *Limit Buffer* – this setting affects the decoder buffer. The bigger the buffer, the more reliable playback is, but the response time will grow proportionally.
- *WSS Enable* – to activate the Wide Screen Signalling. Thus, if the files contain WSS information, it will pass along with the output signal. Thus, receiving devices that support WSS will be able to recognize it and adjust the video aspect accordingly.
- *Overlay Preview* – to enable the video overlay window.

➢ The ***Video*** tab contains specific settings for video calibration. Used to control contrast, brightness, saturation, gamma, and hue of the video output that might be needed on certain occasions. Controls both SMPTE 259M (SDI) digital video output and the analogue composite video output.

Please, do not change anything in this tab unless advised by our support team.

➢ The ***Audio*** tab contains sound-related settings. It controls the decoded audio output only. Does not affect CD-ROM "pass-though" audio. The volume settings are written in the Windows registry and are remembered from session to session.

The *Audio Volume* field contains two volume control sliders:

Analogue volume – controls the analogue audio output volume. This slider does not affect the embedded digital audio output.

Digital Attenuation (available on certain boards only – SDM280, SDM290, HDM500)

☑Use Digital Attenuation – check it to use the Digital Attenuation slider as volume control for the digital audio output.

☑Enable Embedded Audio – check it to have embedded digital audio in the SDI output.

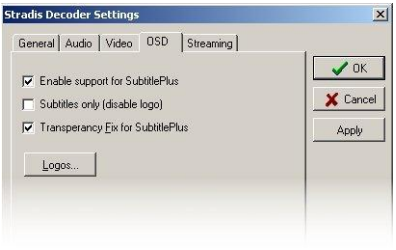
The *AES3 Mode* field contains four options to control the embedded audio format

⊙Consumer – Places the uncompressed digital audio output stream in "Consumer Format".

⊙Pro – Places the uncompressed digital audio output stream in "Professional Format"

⊙IEC-61937 – Mutes analogue output and places the compressed digital audio output stream in "Consumer Format". Used for outputting compressed AC-3 audio to an external consumer AC-3 decoder.

⊙SMPTE 337M – Mutes analogue output and places the compressed digital audio output stream in "Professional Format". Used for outputting compressed AC-3 audio to an external professional AC-3 decoder.



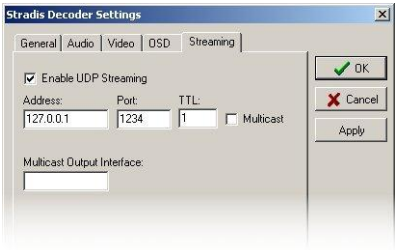
➢ The ***OSD*** tab contains On-Screen Display settings (related to graphics insertion in the output video). There are three checkboxes in it:

☑*Enable Support for SubtitlePlus* – to enable showing subtitles using the SubtitleBox option in ***AirBox***.

☑*Subtitles Only (disable logo)* – ticking this box will disable showing the logo on the output.

☑*Transparency Fix for SubtitlePlus* – certain boards need this tick to display the subtitles background correctly.

Pressing the ***Logos…***button will open the Logo Settings dialog, so you can define up to 16 static logo presets.



➢ During playout, you can stream the program to the network as well. The ***Streaming*** tab contains settings related to the output UDP stream.

Check ☑*Enable UDP streaming* to switch this option ON.

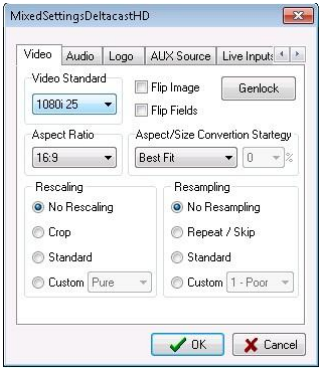
Specify the destination IP *Address* and *Port* in the string below. In the *TTL* cell, enter the Time-to-Live value. Check ☑*Multicast* if you want to broadcast the stream throughout the network.

If there are more than one LAN cards in the playout station, specify which of them to be used for the streaming in the *Multicast Output Interface*. Otherwise, the stream will be output through all available LAN cards.

NOTE: UDP Streaming is an optional feature that is not included in the standard ***AirBox*** licence.

NOTE: The settings for HD playout on Stradis hardware modules (HDM - 500e) are similar to the settings, described above.

III.4.4.15. Mixed Deltacast HD Output



➢ **Video settings**

First, you have to select the video standard from the drop-down list, into ***Video Standard*** area into in the beginning.

Check ☑***Flip Image*** check-box, in order to correct the image orientation.

Check ☑***Flip Fields*** check-box, in order to correct the fields order.

NOTE: ☑*Flip Image* and ☑*Flip fields* will affect all files in the playlist!

Aspect Ratio - For example, in case the default aspect is set to 4:3, and you have to play out clips with aspect 16:9, you can choose how the output video will looks like, using the *Aspect/Size Conversion Strategy* drop-down menu. The following settings are available:

Best fit – will keep the real size of the image. Two horizontal black bars will be added above and under the video to fill-up the remaining part of the screen. The horizontal size of the video is preserved.

Balanced Letterbox – the horizontal black bars will be smaller. Small parts on the two sides of the video will be left out of the screen.

Full screen/Zoom – the horizontal size of the video will be preserved. Video will be cut equally on the top and in the bottom.

Stretch – using this setting, there will be no black bars on the screen, but a little change in shapes form.

Custom **–** it is used for custom settings.

When select it, the drop-down box at the right side of the *Aspect/Size Conversion Strategy* box becomes available. It allows you to adjust what part of the image and what part of the black bars will be visible in percentage.

For example, if you select 50 %, the result would be like "**Best Fit**" Aspect/Size relation.

100% - the result will be like *Full screen/Zoom.*

0% -. the result will be like *Balanced Letterbox.*

In case the source file has different resolution then the output resolution, there might be some ***Rescaling*** of the video.

⊙*No Rescaling* – if chosen, there won't be rescaling.

⊙*Crop* – if the source file is with higher resolution than the output resolution, only the middle part of the video will be visible. If the input video is with lower resolution, the rest part of the output picture is filled with a black color.

⊙*Standard* – this setting corresponds to the *Low* one from the *Custom* list.

⊙*Custom* – if pressed, the user has to choose type of quality from the drop-down list near the relevant radio-button.

NOTE: Working with higher video quality requires more CPU power.

In case the source video has a different frame rate, then the output one, the following ***Resampling*** options are provided:

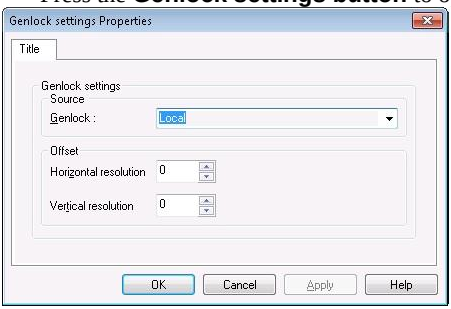
⊙*No Resampling* – there will be no resampling.

⊙*Repeat/Skip* – for example, if the output video standard is set to NTSC, but you have to play back a file, which belongs to the PAL standard, some frame will be repeated in order to stuff up the frame number to 30. By analogy, some frames could be skipped.

⊙*Standard* – corresponds to the *9-Very High* quality from the *Custom* list.

⊙*Custom* – if chosen, you have to select an item by your choice from the drop-down list near this radio-button.

Press the **Genlock settings button** to open GenLock settings dialog

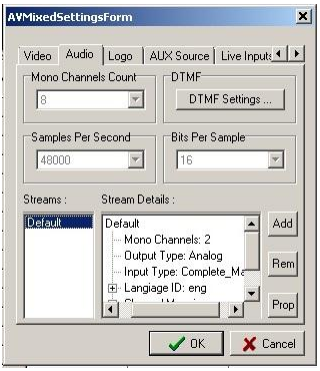


GenLock (for **gen**erator **lock**) is a common technique where the video output of one source, or a specific reference signal, is used to synchronize other television picture sources together.

In this settings dialog, you can define *Genlock source* and *Offset* of **Horizontal** and **Vertical resolution**.

Genlock sources could be **Local** (generated internally from the DeltaCast HD card) or **Blackburst**(coming from an external source, connected to the black burst port of the card).

The *Offset* is defined in pixels.



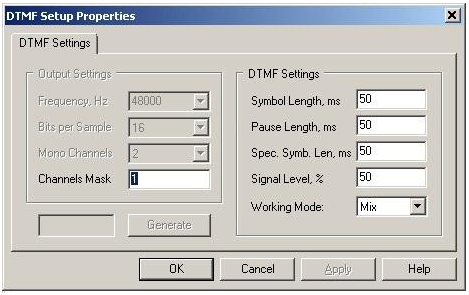
➢ ***Audio*** tab

Here you can define some settings about the audio output.

The **Mono Channels Count** field shows the number of available physical mono channels

► In ***Audio*** settings tab, you can define also an output **DTMF** signal, which to be generated from ***AirBox*** application.

- Output settings. Here you can define the parameters of the DTMF tone – **Frequency**, **Bits per sample**, number of **Mono Channels** and **Channel Mask**.



Depending on the channel Mask, the DTMF tone is sent to a specific audio channel. If Channel Mask is zero (0), the DTMF is not sent. If it is one (1), DTMF is sent to the 1st mono channel. If it is two (2), DTMF is sent to the 2nd mono channel

- DTMF setting:

Length of the standard **Symbol** in DTMF sequence - **numbers from 0 to 9 and letters A, B, C, D.**

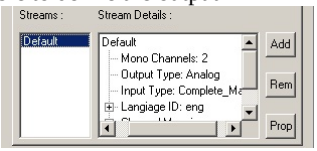
Pause Length – length of the pause between symbols

Specific symbols length - Specific symbols are all symbols into the DTMF strings different than numbers from **0 to 9** and **letters A, B, C, D.**

Level of the signal – the signal level in percent.

Working Mode - here you can define whether the DTMF to be **Mixed** with the output audio, or to **Replace** the output audio.

► Into ***Audio*** settings tab, it is also possible to define the output audio **Streams** (audio tracks).



The list of streams is visible into **Streams** window. When select a stream from the list, into the next **Stream Details** window, you can see the details for this audio stream.

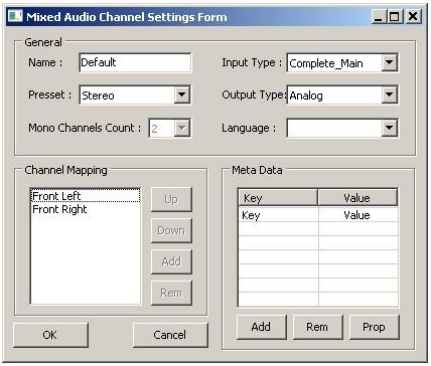
To define/remove/edit a stream, press respectively **ADD/REM/PROP** button at the right side of the window.

When press **Add** button, the set-up window will open.

Enter the name of the new stream in the **Name** field.

In **Presset** field, you can select a preset for a channel mapping from a drop-down list. Here you can see a list of the most popular channel mappings.

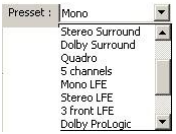
For example, if you select "Stereo", the channel mapping will consist: *Front Left* and *Front Right* channels. If you select "3 front LFE", there will be: *Front Left, Front Right, Front Center* and *LFE Subwoofer*.



Note: If a preset is selected, it is not possible to edit **Mono Channels Count** and **Presset** fields.

In **Mono Channels Count** enter the number of mono-channels included in this stream.

If you have selected some preset from **Presset** list, then the number of the mono channels appears automatically and you cannot change it.



If you select the **Presset** to be *Unknown*, then you can enter the number of mono channels by yourself and you can define your own channel mapping into **Channel Mapping** area.

By default, when you select some number of mono channels, into **Channel Mapping** you will see the most popular mapping for these number of mono-channels. *For example*, if you select 2 mono channels, the Mapping will consist: *Front Left* and *Front Right* channels. If the mono-channels are 4, the Mapping will be: *Front Left, Front Right, Front Center* and *LFE Subwoofer*.

You can delete one or more of these mono-channels by pressing **Rem** button from the right of **Channel Mapping** area.

Then you can add a new channel for audio mapping, by pressing **Add** button.

To change the order of channels, just select one of them and move it up or down in the list, by pressing **Up** or **Down** button.

Note: If you have selected some preset from **Presset** list, then you cannot edit **Channel Mapping**

In the **Input Type** field, you can select from a drop-down list a type of the sound in this audio stream, like “dialogue”, “music and effects”, “commentary”, “voice over”, etc.

In the **Output type** field select the output **Encoding** method – *PCM*

The language of a sound could be selected in **Language** field.

Meta Data – this is a list of additional audio metadata for audio stream, defined by user. *For example* default volume, copyrights, etc.

You can Add, Remove or Edit metadata, if select it and press respectively **Add/ Rem** or **Prop** button.

When you are ready, press **OK** button at the bottom of the ***Mixed audio channel settings*** window. The new defined audio stream will appear in the channel list.

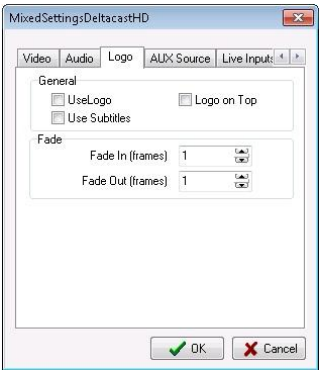
➢***Logo tab -*** this tab contains two fields – *General* and *Fade*.

The first one contains the following check-boxes:

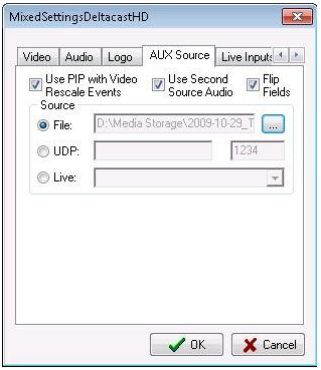
☑*Use Logo* **–** if not checked, the user won’t be able to use logo.

☑*Use Subtitles* **–** check it to enable the usage of subtitles.

☑*Logo on top* **–** you can use it to avoid eventual overlapping of the logo and subtitles.



To adjust the duration of the Fade In and Fade Out effects when showing/hiding the logo, use the relevant spin-boxes, situated in the *Fade* field



➢***AUX Source*** tab

There are settings for using an additional video source. There are three possible AUX sources:

- previously prepared file – you need to enter its location;
- UDP stream – enter the IP address and port;
- Live video – video signal coming from **Live Input**, as it is defined in ***Live Input*** settings window. Here you have to enter the name of the

live source, exactly like it is entered in the ***Live input*** window.

The additional video source is usually used for creating Picture-in-picture (PiP).

To allow the PiP functionality, you have to check the ☑*Use PIP with Video Rescale Events* box. The video files from the playlist will be treated as a background video. The live source video will be resized according to the settings made within the *Video Resize Control event* (for more information, please, check the Video Resize Control Output description).

NOTE: Keep in mind that when creating the resize control event, you have to specify offset at least 1 sec (1000ms).

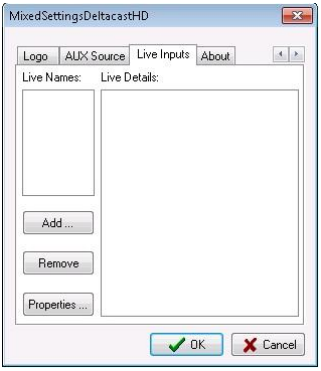
Check the ☑*Use Second Source Audio* box if you want the output audio to be the one, coming from the AUX source.

IMPORTANT: It is recommended the live stream video standard and fields order to be similar to the playlist input video.

NOTE: This plug-in supports **transition** between clips in the playlist. Please check the clip properties description for details.

- ***Live Input*** tab

Here is defined an additional video source, if such is available. This Live video source will be used further as a source for Live event into the playlist or Picture-in-Picture feature.



Press the **Add** button and select the type of the Live input source. It could be ***Capture Device, Color*** or ***UDP.***

After selecting the live source and entering its name, press **OK** button and new setting window will open, depending on the type of the source.

NOTE: This *Live Input Name* is entered into ***Live event*** settings or ***PiP*** settings, in order to select a live video source.

Important: The *Name* is key sensitive!

Press the **Prop** button, if you want to change the settings for selected live source.

Press **Rem** button, to remove the selected live source.

- If the live is source is Capture device, the following window will open:

Into **Video Device** field, select a device from a list of available devices for this particular workstation.

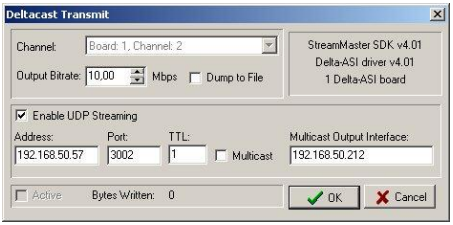
In the **Video Format** field select a video format from the list.

If it is needed, check the ***FlipFields*** checkbox.

Into **Audio** area select the **audio device** and **audio format** of a live source.

- If the selected live source is **Color**, the dialog for setting a color will appear. You have to specify values for the three main colors (Red, Green, Blue), in order to define your preferred color.
- If the selected live source is **UDP,** a dialog for entering an IP address and port number appears**.**

III.4.4.16. Deltacast ASI Pump Output



This plug-in uses MPEG2 source files and directly pumps the content without recompression. It is outputting a Transport Stream, carried in ASI interface with a constant bitrate.

The available settings of this plug-in are as follows:

If there is more than one board and/or channels on the machine, specify the one to output using the *Channel* drop-down list.

In the *Output Bitrate* spin-box, specify the output bit rate. If your content has lower bitrate than the specified, ***AirBox*** will stuff it up to the specified value.

If you check ☑ *Dump to File*, a browse dialog will open for you to select the location of the MPEG2 TS file to save the output stream.

Checking ☑ *Enable UDP Streaming* box, the user has to specify *Address* and *Port* for the ASI output video to be streamed via UDP during pumping the content.

TTL stands for time-to-live for the Internet packets. The higher the *TTL* value, the longer the packets will "live" and pass through more routers. By default it is "1" which is enough for local networks.

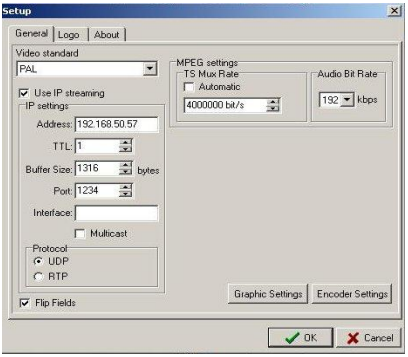
If you check *Multicast*, i.e. streaming to multiple machines, you will have to enter a special multicast address in the *Address* field.

In the lower part of this dialog, you can view the status of the plug-in. The ☐ *Active* box is checked only during the playout. To the right, you can see information about the number of streamed bytes.

IMPORTANT: There will be no Preview window available, using this plug-in. Graphics insertion and Video Resize Control events are not possible.

NOTE: Should you need more information about the ASI solutions and workflows in PlayBox, please contact support@playbox.tv. We will be glad to provide you with the latest available ASI info pack.

III.4.4.17. Deltacast ASI MPEG2 TS Output



This plug-in setup dialog consists of three tabs:

- The ***General*** tab contains most of the settings available for this plug-in.

A drop-down list in the upper left corner provides options for video standard selection.

Checking the ☑ *Use IP streaming* box, the User has to define settings for the ASI output video to be streamed through the LAN card.

Address – enter the IP address of the remote machine to receive the stream.

If you check ☑*Multicast*, i.e. streaming to multiple machines, you will have to enter a special multicast address in the *Address* field (the multicast addresses are in the range between 224.0.0.0 and 239.0.0.0).

TTL stands for time-to-live for the Internet packets. This spin-box is active only if the ☑*Multicast* box is checked. The higher the *TTL* value, the longer the packets will "live" and pass through more network routers. By default TTL is set to "1" which is enough for local networks.

Buffer size – in this spin-box you can specify the size of the IP packets to be sent along the network. This size should be multiple of 188 bytes which is the size of an MPEG-2 TS packet. We recommend 1316 bytes buffer size which will comply with the standard network MTU.

Port - define which communication port will be used for the streaming. By default it is 1234.

Interface - if there are more than one network cards in the PC, specify which one should be used for the streaming in this string. If you leave it empty, ***AirBox*** will stream through all available interfaces.

Multicast – check it to stream to all PCs in the network.

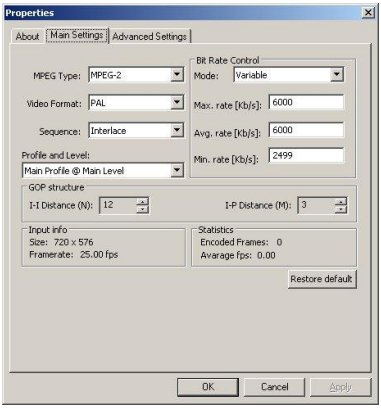
When the *TS Mux Rate* spin-box becomes active, you could select ☑*Automatic* of fix the Mux rate manually. *Audio Bit Rate* is adjustable for both stream types. It is 192kbit/s.

Protocol – you can choose between UDP and RTP.

☑*Flip fields* – if for some reason the field order of your content is wrong, check this dialog to rectify the output.

IMPORTANT: The fields of all clips will be flipped, so do not mix files with different field order in the same playlist!

Pressing the ***Encoder Settings*** button will open the setup dialog of the MainConcept MPEG-2 Video Encoder. It consists of three tabs: About, Main Settings and Advanced Setting.



The ***Main Settings*** page contains basic stream settings:

In the *MPEG Type* drop-down list are listed all MPEG video compression types available in the Main Concept encoder.

The *Sequence* drop-down list provides two options for video scanning: Interlace (each frame divided into two fields) and Progressive (25/29.97 whole frames per second).

Below, you can choose the encoding profile and level.

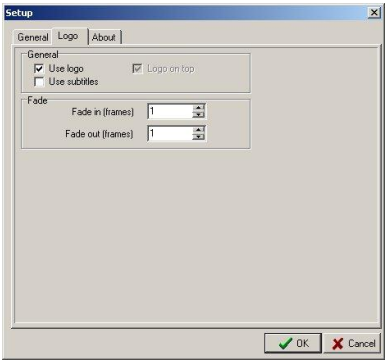
To the right is situated the Bit Rate Control field. In it, you can specify the bit rate mode: Constant, Variable or Constant Quantization. Below are the specific bitrate values strings.

In the GOP structure area, you can specify the GOP size (N) and the reference period (M).

The ***Advanced Settings*** page contains more sophisticated options that should not be changed unless advised by our support team!

Pressing the ***Graphic Settings*** button will open the setup dialog of the DMT graphic layer filter. This dialog contains four tabs: Graphic Layer, Scale, Output and WSS. All settings in it require ***AirBox*** restart or at least pressing the ***Reset Hardware*** button in the main ***AirBox*** window to apply.

The ***Graphic*** layer tab is used for service purposes, so please do not change anything there. The ***Scale*** and ***Output*** tabs are described in the Soft MPEG2 plug-in description above.



➢ In the ***Logo*** tab, there are several settings related to the logo and subtitle insertion in the output.

In the *General* filed above, you can enable using logo and subtitles.

When both logo and subtitles are enabled, a third check-box becomes active. Check ☑*Logo on top* to make sure the logo will not stay beneath the

subtitles in case they overlap.

Below you can set the number of frames for the logo fade effect.

IMPORTANT: There will be no fade for the logo when using both subtitles and logo!

III.4.4.18. Deltacast ASI MPTS Output

This plug-in uses Multi Program Transport Stream source files and outputs them in ASI interface without any alteration. In the dialog to the right, you have to specify a *Channel,* in case there is more than one board and/or channels on the machine. The *Output Bitrate* spin-box is designed for indication of the output bit rate. It is automatically defined from the source file and it is not editable.

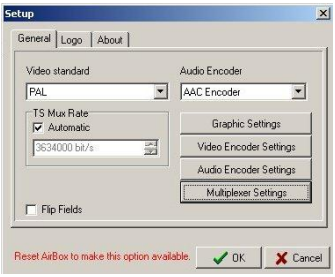
WARNING! If the source files are with different bitrates, the point of switching between them will not appear seamless.

When checking the ☑ *Dump to File*, a browse dialog will open for you to select the location of the MPEG2 TS file to save the output stream. In the lower part of this dialog, you can view the status of the plug-in. The ☐ *Active* box is checked only during playout. To the right, you can see information about the number of streamed bytes.

IMPORTANT: There will be no Preview window available, using this plug-in. Graphics insertion and Video Resize Control events are not possible.

NOTE: Should you need more information about the ASI solutions and workflows in PlayBox, please contact support@playbox.tv. We will be glad to provide you with the latest available ASI info pack.

III.4.4.19. Deltacast ASI H.264 Streaming Output



This is another optional plug-in which uses MPEG-2 source files and streams them as MPEG-4 H.264 video. There are two tabs in this setup dialog. In the***General*** tab, specify the output *Video standard.* When the *TS Mux Rate* spin-box becomes active, you could select ☑*Automatic* or fix the Mux rate manually.

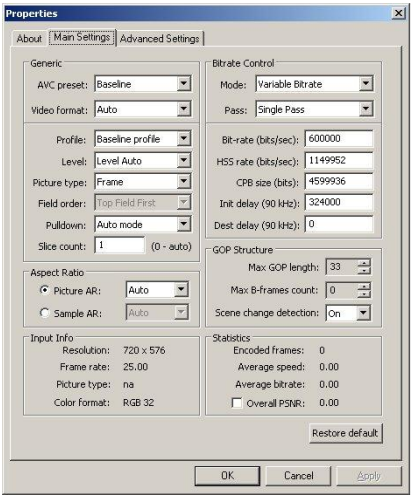
☑*Flip fields* – if for some reason the field order of your content is wrong, check this dialog to rectify the output.

In order to choose an *Audio encoder*, the user can select from the relevant drop-down list.

Pressing the ***Graphic Settings*** button will open the setup dialog of the DMT graphic layer filter.

This dialog contains four tabs: Graphic Layer, Scale, Output and WSS. All settings in it require ***AirBox*** restart or at least pressing the ***Reset Hardware*** button in the main ***AirBox*** window to apply.

The ***Graphic*** layer tab is used for service purposes, so please do not change anything there. The ***Scale***, ***Output*** and ***WSS*** tabs are described in the Soft MPEG2 plug-in description.



Pressing the ***Video Encoder Settings*** button will open the MainConcept AG AVC/H.264 encoder setup window. It is containing three tabs.

The ***About*** tab contains information about the codec version.

In the ***Main settings*** tab the user can specify an *AVC Preset*. Each Preset is a predefined group of encoding settings, designed to facilitate the user. In the *Video format* drop-down list, specify the format of the video. When it is set to *Auto*, the video standard will be automatically defined from the input video. The *Profile* and *Level* drop-down

lists are referring to the Profile and Level of the encoder. Using them, the user defines the possible input signals and output settings.

Below, you can choose among different profiles and levels, and specify the picture types: frame, field or MBAFF*.

Further down, you can specify the fields order (bottom or top first), and the *Pull-down* mode. Pull-down is applied for conversion when the source bitrate and the output bitrate are different.

Slice count defines the number of slices per picture.

In the *Aspect Ratio* field, there are two options:

- ⊙ *Picture AR* – to fix the aspect ratio of the whole picture;
- ⊙ *Sample AR* – to fix the aspect ratio of the pixels in the output picture.

In the *Bitrate Control* field, there are two drop-down lists and several strings.

Mode – specifies the rate control mode (Constant, Variable or Constant Quantizer).

The *Pass* drop-down list is used to specify the multi-pass encoding mode:

Simple – encoding without gathering statistics

Analyze – encoding and gathering statistics for next pass

Encode – encoding using the gathered statistics and updating them.

Bit-rate (bits/sec) – specifies the average bit-rate (bits/sec) of the encoded video elementary stream.

* Macro Block-Adaptive Frame/Field coding.

HSS rate (bits/sec) – specifies the hypothetical stream scheduler rate (bits/sec) of the encoded video elementary stream.

CPB size (bits) – specifies the size of coded picture buffer in bits.

Init Delay (90 kHz) - specifies the initial CPB removal delay in 90 kHz clock units.

Dest Delay (90 kHz) - specifies the destination CPB removal delay in 90 kHz clock units.

In the *GOP Structure* field, you can set:

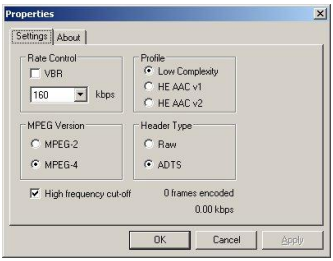
Max GOP length – the maximum length of any Group Of Pictures. Larger numbers frequently provide better compression. Smaller numbers provide better error recovery and better access to the frames for editing.

Max B-frames count – the maximum number of *B frames* in a GOP. Some decoding situations such as video conferencing may require “no B-frames” for providing low communication delay.

Scene change detection – enables/disables the scene change detection.

The ☑ *Overall PSNR* check box is situated in the lower right corner of the *Statistics* filed. It enables/disables measuring the Peak Signal to Noise

Ratio. This requires some CPU resources, so check it only if you need these statistics.



The ***Advanced Settings*** tab refers to the AVC H.264 standard specifications. It contains more sophisticated options that should not be changed unless advised by our support team!

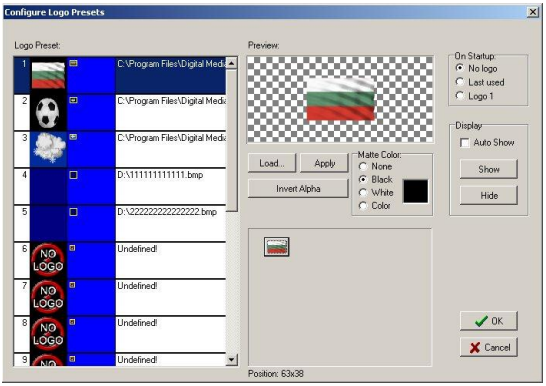
Pressing the ***Audio Encoder Setting*** button will open the MainConcept's AAC Encoder© properties dialog.

The *Bitrate Control* specifies the average output audio bitrate; the *Profile* sets the object type; and the *Header type* sets the output bit stream format (raw or with ADTS headers).

Check ☑ *High frequency cut-off* to reduce the encoded data.

Pressing the ***Multiplexer Settings*** button will open the MainConcept Multiplexer© properties dialog. You can view the parameters of the output MPEG-2 TS stream in it.

III.4.5. Logo



In this configuration dialog, logo images are set for displaying in ***AirBox*** (their position on the screen, transparency, etc.).

Logo Preset field – contains a list of logo presets available for use.

To load a new preset, press the ***Load*** button and select a file. It will appear in the *Preview* area. If you approve it, press the ***Apply*** button to save the logo file in the preset list.

- ***Invert alpha*** – inverts the alpha key of the logo (if the original picture file has an alpha).
- ***Matte Color*** – this is the background color which should be mixed with transparent colors and thus removed from the logo image.
- ***Position*** – illustrates the logo position on the screen.

On Startup – these options are used to define the logo appearance on pushing the ***Start*** button in ***AirBox***:

⊙*No Logo* –no logo appears on starting ***AirBox***.

⊙*Last used* – If there are no Logo preset events in the playlist, the last used logo will appear on starting ***AirBox***.

⊙*Logo 1* – If there are no Logo preset events in the playlist, Logo Preset #1 (from the list) will appear on starting ***AirBox***.

- ***Auto show*** box – check it if you want to display the logo while you're editing it.

NOTE: All changes will be shown on the screen immediately!

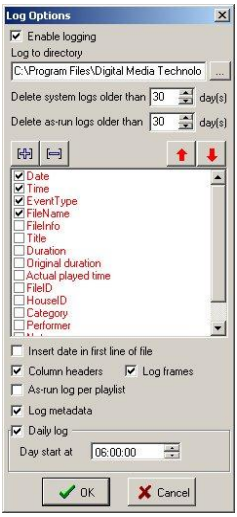
- ***Show*** button – starts displaying the logo.
- ***Hide*** button – hides the logo from the screen.

NOTE: The picture format depends on the decoder. The 32-bit RGBA files are most preferable, but TGA, JPG and PSD files are widely supported, too.

IMPORTANT: You will not have fade transition when displaying Logo and Subtitles simultaneously on the DeckLink platforms!

Please refer to the SubtitleBox section for more details about the subtitling options in ***AirBox***.

III.4.6. Logging



AirBox generates two types of log files: System logs and an AsRun log. A Logs directory is created at ***AirBox*** installation. It contains a System subfolder by default. *Errors, System events, Events* and *Event type* are logged in the *System log* regardless of your wish.

In the **Log Options** dialog box you can choose what playlist entry information will be included in the logs; should they be created on a *Daily* basis or not; and make some log-management settings.

If ☑*Enable logging* is checked, an AsRun log file will be created; otherwise, ***AirBox*** will not generate as run logs. When you first check this box, browse for a folder to save your AsRun logs to. If not, a subfolder AsRun is created in the *AirBox\Logs* directory. Your AsRun log files will be saved there.

Delete system logs older than 30 *days* – this option will help you to manage your system log files by deleting the ones older than the number of days set in the spin-box. You can choose between 14 and 100 days.

Delete as-run logs older than 30 *days* acts the same as above, but for the AsRun logs.

You can add info fields in the log by checking the relevant check boxes in the list. Use the red arrows to change the position of the currently selected item in the Log file.

Some third-party applications require an exact number and content of the columns in the log file. Therefore, we have created several empty fields that can be inserted in the log to comply with such specific requirements.

Below the list of info fields, there are several selectable options:

☑*Insert date in first line of file* is used in daily logs, if you want to view the date in the first line of the log as well. When unchecked, the date is contained only in the filename and the log itself contains only time entries.

☑*Column headers* represent a line in the log that displays the log configuration under it. Thus, any time you change the log configuration

(through the check-boxes and red arrows) and click OK, a new column header line will appear in the logs.

☑*Log Frames* will display the number of frames at the end of all time-containing values.

☑*As-run log per playlist* – checking this box will create a separate as-run log each time a new playlist is loaded in ***AirBox***.

☑*Log metadata* – all metadata fields will appear as additional tab-delimited entries in the row of the relevant clip.

You can add new columns to the log by pressing the plus sign button. This allows logging certain Metadata fields from the clip properties. All you have to do is specify the name of the Metadata you want to log (as it appears in the first column of the Metadata tab).

You can also set the periodicity of log files – *Daily log* or aggregated files.

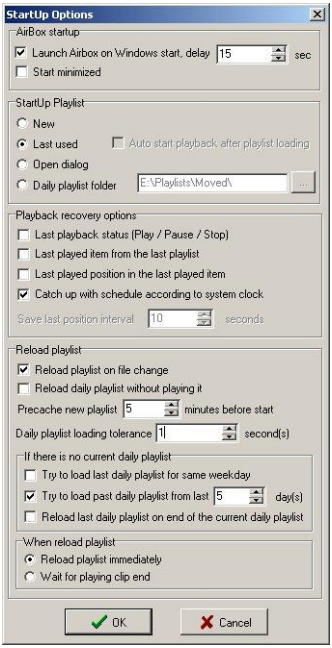
If ☑*Daily log* is selected, a new *AsRun Log file* will be created each new day. The *System logs* are always daily despite this setting. The *Day start at* field determines when to start the new log. This setting is necessary in case you wish to log 24-hour periods that start at your wish (for example at 02:00:00 o'clock instead of 00:00:00)

The Log file is generated in simple Tab-delimited text format. It can be imported to various applications, text editors, etc.

TIP (!) You can easily export the logs to MS Excel format from **File** menu ➔ **Export logs in XLS files…**.

NOTE: Regardless of the above settings, ***AirBox*** will generate System logs that are saved in the program directory. The minimum period for keeping the system logs is 14 days (see above).

III.4.7. StartUp



Here you can find useful options for setting the ***AirBox***' behavior on module start-up: *StartUp Playlist*, various *Playback recovery options*, how playlists will be reloaded and two system options.

➢ In the top of the ***StartUp*** window, you can choose between two system options:

- *Launch AirBox on Windows start, delay […] sec.* – you could need some delay as the system might take some time to initialize the installed decoder. If ***AirBox*** starts before that, it will not be able to perform normally, as the decoder will be "missing". Increase the delay to ensure that ***AirBox*** will not start before the hardware initialization.
- *Start minimized*.

➢ ***StartUp playlist***

In this section you can choose a playlist to be loaded at ***AirBox*** start-up.

- *New* loads a blank playlist;
- Choose the *Last used* option and the next time you start ***AirBox*** it will load the last played list. In addition, you can choose to ☑*Auto start playback after loading* the last used playlist.
- *Open dialog* invokes a query to choose a playlist from the last used playlist location.
- The *Daily playlist folder* gives an opportunity for some simple scheduling of playlists. Choose a folder in which you will place the daily playlists by filling-in its path or just browse for it with the … button. There you will save the playlists you want to schedule. They require specific naming structure in order to be played on the desired date and time. An example name is "2003_11_20_14_00_00.ply". 2003 stands for the year, 11_20 is for MM_DD (month_day) and 14_00_00 is HH_MM_SS (hour_minutes_seconds). Only files with such naming structure will be played automatically when ***AirBox*** is running in this mode. Now you can use the Save daily playlist feature in the ***AirBox*** **File** menu to achieve this naming automatically.

➢ ***Playback recovery options***

Here you can specify what ***AirBox*** should do in case of accidental restart /abnormal termination of the module. The following options are available if ***AirBox*** is not running in daily playlist mode:

- *Last playback status (Play/Pause/Stop)* – if chosen, resumes the last playback status of ***AirBox*** depending on the status in which it was before stopping.
- *Last played item from the last playlist* – applies playback status to the last running object before stopping. This option doubles the first one – and cannot be selected without it.
- *Last played position in the last played item* – functions as of the two previous options and even more – remembers the position in the last item to resume status exactly at it. The interval for saving the last position is changeable.
- *Catch up with schedule according the system clock* – this option allows playlist recovery after a failure and synchronizing it with the system clock.

When setting this option, you should bear in mind that the default start time for all playlists in ***AirBox*** is 00:00:00 hours. Therefore if you have started your playlist manually, after a power failure ***AirBox*** will resume playback from that point in the playlist which corresponds to the initial time (00:00:00) plus the current system clock time. For example: you start your playlist manually at 9:00 o'clock; at 9:30 occurs a power failure that persists till 10:00. After power supply recovery at 10:00 ***AirBox*** will resume playback from the point in the playlist that is 10:00 hours away from its beginning (considering 00:00:00 as initial start time). In short, ***AirBox*** will "forward" the playlist to the time point of power supply recovery, taking 00:00:00 as initial time.

In order to overcome this, you should compile your playlists starting with **wait events** or **fixed-time items**. The wait events' values should be set in hours from 00:00:00 to the desired start time of your play list, i.e. for the above example, your playlist should start with a "wait for 9 hours" event or with a fixed-start clip.

Thus, in case of power failure, ***AirBox*** will account for the initial time set by you and will resume playback from the point that corresponds to the power recovery time. I.e. for the above example, at 10:00 o'clock ***AirBox*** will start from the point, which corresponds to one hour after the beginning of the playlist (set to 9:00 o'clock through a wait event).

NOTE: Playback recovery options will not be applied when ***AirBox*** is running in daily playlist mode! In daily playlist mode, ***AirBox*** will always try to catch-up with schedule according to the playlist start time and the cu rent system time.

➢ *Reload playlist*

In this section, you can adjust settings related to the way ***AirBox*** handles playlist reloading.

- *Reload playlist on file change* – reloads the current playlist automatically, if in the meantime it has been changed and saved by another user.
- *Reload daily playlist without playing it* – in certain occasions playlists should not start playing when reloaded.

WARNING! When this box is ticked, ***AirBox*** will not calculate the insertion point when reloading playlist on file change, either!

- *Pre-cache new playlist* […] *minutes before start* – specify how many minutes before the playlist start ***AirBox*** should cache it.

NOTE: For long playlists, we recommend entering higher precache time values.

- *Daily Playlis loading tolerance […] seconds* – specify the daily playlist loading tolerance in seconds. Loading a playlist always takes a few moments depending on its length. ***AirBox*** calculates the exact point to start playback after the playlist is loaded. Thus, if there is an event in the beginning of the playlist, it might be skipped: as the event's duration is zero, its time could be considered past after playlist loading. Therefore, you should set some loading tolerance to ensure the correct execution of the first event in the playlist (if any). Usually one second should be enough, but it depends on the playlist length.
-

If you work in Daily playlist mode, it is important to clarify, what will happen is case **If there is no current daily playlist.** It is possible to:

- *Try to load last daily playlist for same weekday* – ***AirBox*** will search the daily playlist folder for old playlists for the same day of the week (i.e. Fridays) and will load the most recent one.
- *Try to load past daily playlist from last […] days* – ***AirBox*** will search the daily playlist folder for old playlists according to your settings and will play the most recent one (i.e. yesterday, if available).

NOTE: If there are three playlists from the previous day (i.e. 10:00, 12:00 and 18:00), ***AirBox*** will load the latest one (i.e. 18:00), regardless of the current time (i.e. even if now it is 9:00 o'clock).

- *Reload last daily playlist on and of the current daily playlist* – ***AirBox*** will load again the currently playing daily playlist as soon as it ends.

If you have checked ☑*Reload playlist on file change,* it is important to define when the reloading will happen:

When reload playlist

In the field below, you can set two additional rules on playlist reloading:

- *Reload playlist immediately*.

Depending on the playlist type - Regular or Daily, the behavior of ***AirBox*** is different:

A. Regular (not Daily) playlist operation:

There are two possible situations on reloading the playlist:

a). If the currently playing clip (its List ID) is available in the new edited playlist, ***AirBox*** will reload the new playlist and will start playing it from the next item (next List ID). Thus, ***AirBox*** will jump to the next item in the playlist.

b).If the currently playing clip (List ID) is removed in the new edited playlist, than ***AirBox*** will reload the new playlist and will start playing it from the beginning.

B. Daily playlist operation

AirBox will remove all items from the current playlist after the currently played item. Instead them ***AirBox*** will load the items from the new edited playlist.

Important: In daily playlist, you can edit only these items, which are after the currently playing item!

Important: You can save the changed playlist and respectively reload it, only if there is no pre-cashed file or playlist. Pre-cashed file is a file locked for playout.

- *Wait for playing clip end*

Note: This option is available only for **Regular (not for Daily)** playlists.

a). If the currently playing clip (its List ID) is available in the new edited playlist, ***AirBox*** will finish playing it. Then, it will load the new playlist and will start playing the next clip accordingly.

b). If the currently playing clip (List ID) is removed in the new edited playlist, ***AirBox*** will reload the new playlist and will start playing it from the beginning.

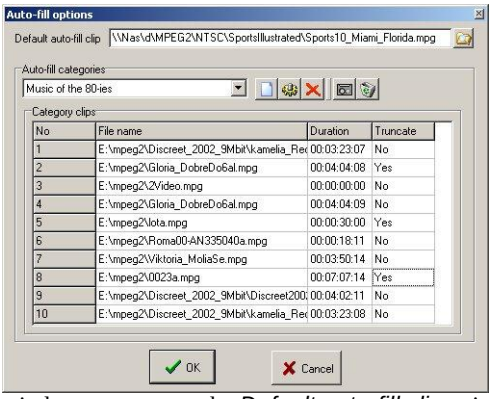
III.4.8. Timecode

If you are licensed to use the *LTC reader* module and have a *DirectSound* compatible sound card, you may use it to read *LTC* timecode from your transport device. The setup of this module is quite simple. Choose your sound card device from the list. Choose *Sample rate* and *Channels* and *Start* the module. Current timecode is shown in the *TC Timer*.

The timecode fed into the LTC reader will be used when inserting Wait TC events in the playlist. Thus, you can slave the playout status of ***AirBox*** to an external TC generator.

WARNING! Do not type any values in the *Sample Rate* string! Select only from the *Sample Rate* drop-down list!

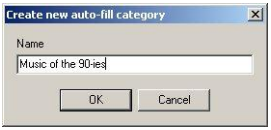
III.4.9. Auto-fill



In the Auto-fill options dialog you can specify a default auto-fill clip, and create your own auto-fill categories, containing certain clips. These settings are necessary for the automatic filling of gaps that may appear in your playlist when using Fixed-time events.

On the top of this window you can see the *Default auto-fill clip* string. Browse for it by pressing the folder button to the right.

Below is the *Auto-fill categories* field. The drop-down list contains all previously prepared categories (hence, it will be empty when you open it for the first time). To create a new category, press the white sheet button to the right and enter the name of the new Category. Click ***OK***. You can rename your categories later by pressing the ***gear-wheel*** button.



Now you have to add clips to your category. Press the ***tape*** button to open a browse dialog to locate the clip.

Let us have a look at the clips description below. The first three columns need no explanation, but the last one is very important. The **Truncate** column contains info on whether this clip can be truncated or not (you can change YES/NO by double-clicking in the relevant cell). This is important, because if you have, let's say, 2 minutes gap and all the clips in the auto-fill category are longer than 2 minutes, and all of them cannot be truncated, there will be a conflict. None of the clips will be played out and the default auto-fill will be executed instead.

NOTE: When playing auto-fill categories, ***AirBox*** will look for clips that can be played out as a whole, then for clips that can be truncated. Thus, if you have a two-minute gap and the auto-fill category contains:

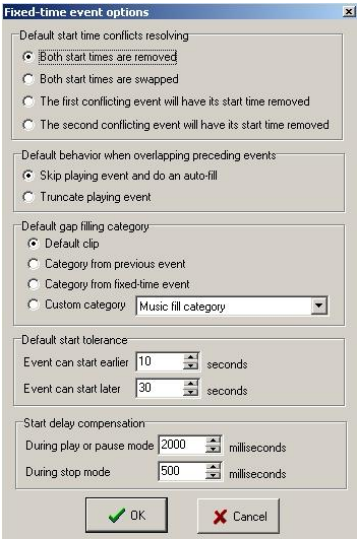
Clip#1 with duration 3:00, Truncate=YES
Clip#2 with duration 2:05, Truncate=NO
Clip#3 with duration 1:50, Truncate=YES/NO,

AirBox will playout Clip#3 first (because it can be played out to its end), and then Clip#1 (because it can be truncated). This comes to illustrate that the order of clips in the category can be changed automatically depending on the gap size.

To delete a clip from the current category, select it and press the ***Delete selected clip*** button. If you want to remove the entire category, press the ***Delete category*** button.

III.4.10. Fixed-time event

When there is more than one fixed-time event in the playlist, it might conflict with other fixed starting times (this can happen if you insert/append a playlist containing fixed-time events to the current playlist, also containing fixed-time events in it).



The first section in this dialog is designed for setting the rules for automated resolving of such conflicts between consecutive fixed-time events:

Default start time conflicts resolving

Let us assume that there are two fixed-time events already inserted in the playlist, but the one that is programmed for later playback (called hereafter **the second**) has an earlier start time than the preceding fixed-time item (called hereafter **the first**). In other words, **the first** has a later start time than **the second**. This dialog provides four possible actions if there is such a case in the playlist:

- *Both start times are removed* – if you check this option, the start times of **the fist and the second** fixed-time events will be removed and they will be played back as ordered in the playlist, without executing the defined start times.
- *Both start times are swapped* – check this and the items' start times will be exchanged. As a result, **the first** item will be played back first, at the start time, set to **the second** item. **The second** item will be played back after that, starting at the time, set to **the first** item.

- *The first conflicting event will have its start time removed* – this will remove the fixed start time of **the first** item and it will be played back in its turn, as an ordinary clip in the playlist. **The second** item will be played **after the first** one and will preserve its fixed-time start.
- *The second conflicting event will have its start time removed* – this will remove the start time of **the second** item and it will be played back in its turn, as an ordinary clip in the playlist (after the first item). **The first** item will be played back as fixed.

NOTE: The playlist is protected against engendering conflict situations when inserting fixed-time events. You will not be allowed to set a fixed start time to an item if there is another overlapping fixed-time, already inserted in the playlist. If you try to enter a conflicting start time, the *Use fixed start time* field will become red and pressing OK will invoke a warning dialog.

Conflict situations could also be caused by applying offset values to these items.

When using fixed-time events in the playlist, one can always come across some conflicts with the "ordinary content" (i.e. without fixed start times). There can be two major conflict types: 1.) the content to be played till the fixed start is more than the time allows (for example there are 15 minutes of clips and only 10 minutes till the fixed time) – **so there is overlapping**; and 2.) there is not enough content to be shown till the fixed start (let us say that there are 5 more minutes of clips in the playlist before the fixed –time row, and the fixed time itself will go on-air after 15 minutes) – **a gap is formed**.

The following two fields in this set-up dialog are dedicated to automatic solving of such conflicts:

Default behavior when overlapping preceding events – Again, it is up to you to precise the rule for automatic settling of this conflict:

- *Skip playing event and do an auto-fill* – all preceding clips that cannot be played as a whole (i.e. from the beginning to the end) before the beginning of the fixed-time clip will be skipped. A gap will appear in the playlist as a result of this skipping. This gap will be filled according to the auto-fill rules, set by you (see Default gap-filling category below).
Let us assume that there are five minutes remaining till the fixed time and you have two clips to go (before the fixed time), both of them 3 minutes long, ***AirBox*** will not be able to play the second one a whole. So this clip will be skipped and an auto-fill event (category or default clip) will be played back instead.
- *Truncate playing event* – ***AirBox*** will playout as much of the preceding clip as possible and when the time comes, it will cut to the fixed time event (see also default start tolerance below).

Default gap-filling category is the third section of the Fixed-time event options dialog and contains several options for automatic filling of gaps in the playlist:

- *Default clip* – The default auto-fill clip must be an MPEG2 (if you're using an MPEG2 plug-in) or DV (if you're using a DV plug-in) file. Most often it is a program logo, or animation, etc. The default auto-fill clip will be played back each time there is a gap in your playlist and you have not specified anything other to be done in order to fill it (you have not set any auto-fill category, or the clips from this category are missing for some reason, etc.).

In brief, the default auto-fill clip is always there in case something goes wrong with the other filling content.

You can specify this file in the *Settings menu* ➔ *Auto-fill* dialog (see below).

- *Category from previous event* – sets the auto-fill category of the last played fixed-time event in the playlist (if such an event exists).
- *Category from fixed-time event* – uses the category from the current fixed-time event (this corresponds to the auto-fill setting in the Clip Properties dialog of the fixed-time item – *see the beginning of this document*).
- *Custom category* – a sequence of clips created by you in the **Auto-fill options** dialog *(see below)* which will be played back if a gap appears.

Default start tolerance – in case you could accept some later or earlier start of your fixed-time events, specify the exact parameters here. Thus, if the time till the end of the previous clip is within the allowable later start, it will be played out without being truncated. Again, if it finishes earlier, within the allowable earlier period, the fixed time clip will start playing without need to fill-in a several seconds gap. This is not a fixed offset!

Example: Let's assume that there are two items in the playlist – an "ordinary" clip followed by a fixed-time clip. The first one finishes at 11.00.20 and the second one must start at 11.00.00. This is a time-conflict situation. But if the fixed-time has set a later start tolerance of let's say 30 seconds, ***AirBox*** will play the first item to its end and the fixed-time will start at 11.00.20.

To recapitulate, later tolerances allow playback of the previous item to the end, and earlier tolerances allow avoiding short gaps (if possible).

The last part of this dialog is called *Start delay compensation*. It allows setting offsets to a fixed-time event to compensate the time needed for reaction of the hardware. The offsets may be:

- *During play or pause mode*- tries to compensate the time (in milliseconds) needed for executing commands like Jump, Next and Resume.

- *During stop mode* – tries to compensate the time needed for executing the Play command.

NOTE: These settings are hardware-specific, so their exact values have to be determined experimentally.

WARNING! When using fixed time events, the playlist should start and end within the same calendar day (i.e. the playlist should not go beyond midnight). Otherwise, we cannot guarantee the proper operation of the fixed time logics and of the daily playlist logics.

III.4.11. Complex Items

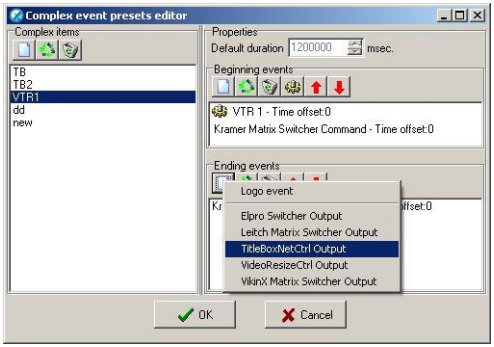
Two main ideas stand behind the complex events:

1.) to avoid inserting numerous rows in the playlist when there are several external events that have to be executed at a time (or one-after- another):

For example, when you need to run a program off tape, you will have to insert a VTR event, plus two switcher events, one for cutting from ***AirBox*** video to VTR output, and the second one to perform to opposite. These all can be part of a complex event, so basically you have a single complex event named i.e. "VTR1" which would take care to send signals to the matrix and to the VTR when needed.;

2.) to enable creating such complex events' presets, so the user will not have to insert the same external events one by one each time he needs them. Instead, he could pick up one of the available presets from the list he has created.

For example, if you have a matrix switcher, which needs to route IN5 to OUT2 in order to get ***AirBox*** on-air, and it needs to route IN2 to OUT2 in order to get live feed pass-through, you could predefine 2 complex events with custom names such as "To AirBox" and "To Live". These complex events will contain the matrix switcher event with its IN/OUT configuration as defined. Then you just need to insert the complex event by name.



So basically a complex event represents a set of external events with their adjustments and offsets.

The *Complex event presets editor* window is divided into two sections:

The *Complex items* field in the left contains a list of available presets and several buttons for preset management.

To create a new preset, press the *Create new complex item* button and enter its name in the New Complex Item dialog. You can edit this name later, by pressing the Edit button (Recycle sign). To delete a Complex event from the list, press the Bin button.

The *Properties* field in the right contains the "essence" of the complex event - a sequence of *Beginning events* and *Ending events*.

You can add beginning or ending events by pressing the Add new external event button in the Beginning/Ending events section respectively. Pushing these buttons invokes a drop-down list of all enabled external events.

NOTE: To have any external event available in the list, make sure it is enabled in ***AirBox*** **Settings** menu ➔ **Modules** ⇨ ***Remote control*** tab.

Each time an event is being added, its settings dialog opens for you to make the relevant adjustments (they can be edited further on) and specify its offset (if needed). The events are executed according to their offsets and regardless of their order in the Beginning/Ending events list.

NOTE: The beginning events can have earlier and/or later offsets, while the ending events can have only earlier offsets.

(!) TIP: If you need to make some fine-tuning of a certain external event when inserting a Complex item in the playlist, select it and press the gear-wheel button above it . Thus, each time you insert this complex item in the playlist, the settings dialog of this event (i.e. a switcher configuration dialog) will open for you to make the final touches. These changes will not be saved in the original complex event; they will be valid only for the current insertion.

(!) TIP: If you want to change the events' order, select an event in the list and press the ***Up/Down*** arrows to move it.

NOTE: If you have set *Default duration* of the complex event, its execution will result in holding the ***AirBox*** playback during it (as in a wait event). Besides, the offsets of the included external events will be calculated in relation to the complex event's start and stop points (*look at the* ***example*** *below*):

Let us assume that we have created a complex event with 15 seconds duration. It includes 2 beginning events…

Event A with 3 seconds **earlier** offset, and

Event B with 2 seconds **later** offset

And an Ending event (C) with 5 seconds **earlier** offset.

The Complex event described above will be executed as follows:

AirBox is playing the clip situated before the complex event in the playlist. 3 seconds before its end, Event A will be executed. 3 seconds later this clip will end and a 15-seconds hold of the playback will start (the complex event duration has begun). 2 seconds later, Event B will be executed. Event C will be executed after 8 seconds (5 seconds before the end of the complex event).

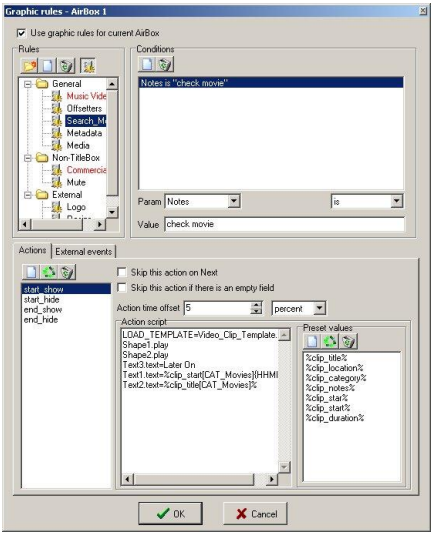
The next clip in the playlist will start playing 5 seconds later (the 15-second duration of the complex event has expired).

NOTE: When the complex event duration is zero, the included events' offsets will be calculated in relation to the surrounding clips the ***AirBox*** playlist and playback will not be paused (*see the example below*).

Let us assume that that we have created the same complex event, but with zero duration: ***AirBox*** is playing the clip situated before the complex event in the playlist. 5 seconds before its end, Event C will be executed. Two seconds later (3 seconds before the clip's end), Event A will be executed. Three seconds later the clip ends and the next clip in the playlists starts playing. Two seconds after its beginning, Event B will be executed.

III.4.12. Graphic Rules

The information contained in the ***AirBox*** playlist can be displayed automatically over the video output through the **TitleBox Net Control** functionality. The main application of this feature is at music channels, to display the performers' names and songs' titles.



First of all, you have to create a TitleBox template, with the objects that will display the information contained in the playlist. In the example below, we have created TB_Music.tmpl. It contains a background picture (we called this object **Background**); a text object for the performer's name (called **Star**) and a text object for the song's title (called **Title**).

Once the template is created and available in the templates folder (see TitleBox NetControl description in the Edit menu section above), go to ***AirBox*** **Settings** menu ➔ **Graphic rules**.

The rules for extracting playlist information and displaying it over the video are set here.

The Graphic rules dialog contains three fields: *Rules*, *Conditions* and *Actions*.

The *Rules* field contains a list of all available rule presets.

Rules are organized in Groups. You can create new groups by clicking on the Folder icon in the *Rules* zone.

By default, you will see a General group with an Example Rule in it.

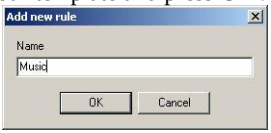
The *Conditions* field contains the list of all necessary conditions that will enable executing the relevant actions below as per the currently selected Rule. In case you use Metadata (from the clip properties dialog) as a condition parameter, type its name in the cell to the right and then specify the operator.

In the *Actions* field there are three lists and a couple of check-boxes. The list to the left contains all actions related to the currently selected rule. The *Action Script* list represents the commands that will be sent to ***TitleBox*** during the currently selected Action.

The *Preset values* list contains the most often used variables that can be added to the script.

For better understanding of the graphic rules, please follow the example below.

To create a new rule, select the group folder to which it should belong and press the ***New rule*** button. Enter the name of your template and press ***OK***.



Then, go to the *Conditions* field to the right and set what should the conditions be in order to execute certain Actions (we will set them later). In the example above, we have set the Parameter to [Category], the Operator to [is] and the Value [Music]. Thus, when the condition **Category is Music** is fulfilled, the Actions below will be executed.

To add a new action, press the ***New Action*** button and enter its name (here- Clip_Start_Show), then press OK. This action will show the selected information from the play at clip start.

In the *Action time offset* spin-box, specify the desired offset for the execution. It can be in percentage from the clip duration or in milliseconds (select this in the spin-box to the right.

Finally, describe carefully the action in the *Action script* field:

[LOAD_TEMPLATE=TB_Music.tmpl] – This line describes which template will be used to show the text from the playlist.

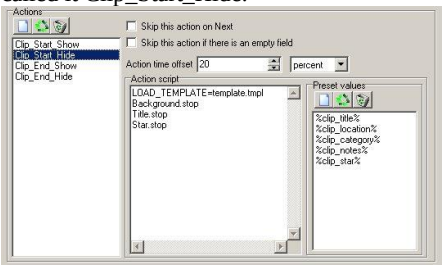
[Background.play] – a Play Command for the picture object **Background**.

[Title.text=%clip_title%] – This line contains the name of the TitleBox object [**Title**] and a description of the text that it should contain (as you see, in this case we will extract information from the clip_title column of the relevant playlist entry). You can drag-n-drop the *Preset Values* from the list to the right.

[Star.text=%clip_star%] – similar to the above, here we have described which cell contains the information to be displayed in the [**Star**] text object.

AirBox sends out this command to TitleBox through the net control option and the clip title and the performer name are displayed.

Now we have to send out another command, to hide the graphics. We called it Clip_Start_Hide:



[LOAD_TEMPLATE=TB_Music.tmpl] – point out which template is addressed.

[Background.stop] – A Stop command for the **Background** object.

[Title.stop] – A Stop command for the **Title** text object.

[Star.stop] – A Stop command for the **Star** text object

WARNING! All entries in the *Action script* field are case-sensitive, so enter them exactly as they are in the TitleBox template project, including the name of the template itself.

In the example in the screenshot above, we have set four actions to be executed when the Category is Music:

Clip_Start_Show – to show the clip title and performer when 5% of the clip duration have passed.

Clip_Start_Hide – to hide the title and the performer when 20% of the clip have passed.

Clip_End_Show – same commands as in Clip_Start_Show, but with 80% *Action time offset* to show the title and the performer at the end of the clip.

Clip_End_Hide – same commands as in Clip_Start_Hide, but with 95% *Action time offset*, to hide the graphics when 95 percent of the clip has passed.

You can add more variables from the Metadata tab in the clip's properties dialog.

The pre-set value format for the metadata is %metadata_MetadataName%, where MetadataName is the same as in the ***Metadata*** tab of the clip properties dialog (in the first column).Thus, if the metadata name is Producer, the pre-set value script will be %metadata_Producer%. Now you can create an Action script that will send this information to ***TitleBox*** (for example: Producer.txt=%metadata_Producer%).

Metadata categories can also be used for changing the file links in picture and sound objects in ***TitleBox***. Thus, you could control which picture(s)/sound(s) should appear over each video clip.

Let us assume that in one of the rows in the Metadata tab we have typed [new picture] [E:\Pictures\pic\A Fantastic Voyage.jpg].

With this example action script, ***AirBox*** will send a command to ***TitleBox*** to:

1. load the project called [template.tmpl];

2. play the object called [picture] and replace the currently loaded picture file with the one specified in the ***Metadata*** tab of the currently playing clip, under metadata category [new picture]:

LOAD_TEMPLATE=template.tmpl
picture.MEDIA=%METADATA_new picture%
Where:
[picture.] is the name of the object that we want to control
[MEDIA] means that this command contains information about a new media file to be loaded in this object.
[%METADATA_new picture%] – This is the place from where ***AirBox*** should "read" the new file path for the media file to be loaded. Again, the format is %METADATA_MetadataName% where MetadataName is the same as in the ***Metadata*** tab of the clip properties dialog (in the first column).

The same action script applies to sound objects:
LOAD_TEMPLATE=template.tmpl
sound.MEDIA=%METADATA_new sound%
Thus, TitleBox will load project [template.tmpl]; play the object called [sound]; and replace the currently loaded file with the one specified in the ***Metadata*** tab of the currently playing clip, under metadata category [new sound].

NOTE: The Metadata name is case sensitive! You must type it exactly as it is in the file properties dialog!

You can display information about the **title of an upcoming clip** in the playlist. The pre-set value descriptor has the following format: %clip_title[+n]%. Then, create a script to send this information to ***TitleBox***:

Next.text=%clip_title[+1]%. Where Next is the name of the text object in TitleBox and [+1] is the index off-setter (to show the title of the following clip).

Moreover, a bookmark can be used as a reference for presenting information about an item in the playlist. Let us assume that the Bookmark name is Test1 and you want to display information about the title of the following clip. Then the descriptor value should be %clip_title[BM_Test1]%.

To display the **start time of an upcoming clip**, type %clip_start[+n]{HHMMSS}%. The command to TitleBox could be Start.text=%clip_start[+3]{HHMM}%.

To show the start time and the title of an up-coming clip, create the following command:

Next.text=%clip_start[+4]{HHMM}% - %clip_title[+4]%, where Next is the name of the text object in TitleBox, [+4] is the off-setter, {HHMM} is the time format.

The time format can also be {HH} or {HHMMSS} or {HHMMSSFF}.

As in NTSC mode the start time appears as drop-frame time code in the playlist, it would be more convenient to display the start time according to the system time on the PC. There are two options for the system time script: {T} – for short system time (according to the Regional settings) and {TT} – for long system time (according to the Regional settings). Thus, instead of Next.text=%clip_start{HHMM}%, you should type Next.text=%clip_start{T}%.

Now you can show information about upcoming clips that belong to certain category. The script format is [CAT_Category Name[±index]].

Title.text=%clip_title[CAT_Movies]% – %clip_start[CAT_Movies]%.

In the example above, the content to be displayed in TitleBox object Title is: the title of the next clip down the playlist that belongs to Category Movies, then a dash, and then the start time of this clip.

Text1.text=%clip_title[CAT_Movies+1]% – %clip_start[CAT_Movies+1]%

In the example above, the content to be displayed in TitleBox object Text1 is: the title of the second clip down the playlist that belongs to Category Movies, then a dash, and then the start time of this clip.

IMPORTANT: There should be no plus or minus signs in the category name!

Instead of **Category**, you could use the **Star** as an index modifier to show information about upcoming clips in the playlist. Thus, the scrip will look like this:

Text1.text=%clip_start[STAR_Madonna]% - %clip_title[STAR_Madonna]% - to show the stat time and title of the next clip in the playlist that has Madonna assigned as **Star**.

OR

Text1.text=%clip_start[STAR_Madonna+1]% - %clip_title[STAR_Madonna+1]% - to show the title of the second clip down the playlist that has Madonna assigned in the **Star** column.

IMPORTANT: Again, there should be no plus or minus signs in the Star name!

Besides **Category** and **Star**, you could use clips' ***Metadata*** as an index modifier to display information about upcoming events. In such cases, the script should look like this:

Text1.text=%clip_start[METADATA_Show]% - %clip_title[METADATA_Show]%. Thus, ***AirBox*** will display information about the next clip in the playlist that has Metadata called Show in its properties (in the first column of the Metadata tab).

OR

Text1.text=%clip_start[METADATA_Show+1]% - %clip_title[METADATA_Show+1]%. Thus, you will display information about the second clip down the playlist that has Metadata Show in its properties. Replacing "+1" with "+2" will display information about the third clip down the playlist that has Metadata Show in its properties, and so on.

NOTE: Even if there is no value for this metadata (in the second column of the Metadata tab), it will be considered as valid and ***AirBox*** will display information about that clip.

IMPORTANT: There should be no plus or minus signs in the Metadata name!

Special actions in the Graphic Rules can control other than graphics events.

Thus, you can control the logo insertion for example. The commands can be assigned as separate actions or as lines in other graphic rules actions.

The beginning of such an Action script is marked with exclamation mark {!}.The script must end with exclamation mark too{!}

Inside the script, there can be three types of commands: LOGO_OFF (to stop showing the logo), LOGO_ON (to show the last used logo), or SHOW_LOGO_PRESET_1…16 (to show one of the 16 logo presets as specified in **Settings** menu ➔ Logo).

Here is an example of a command to stop the logo: {!LOGO_OFF!}

IMPORTANT: The logo script is case-sensitive, i.e. it must be typed in capital locks!

Another couple of actions can switch the incoming triggers ON and OFF. Thus, the received GPI In pulses, DTMF tones or Time Code will be ignored and the commands assigned to them will not be executed during a certain clip.

These actions are called AUTOMATION actions. The possible commands are:

{!AUTOMATION_OFF!} – to disable the incoming GPI/DTMF triggers.

{!AUTOMATION_ON!} – to enable the incoming triggers.

WARNING! Do not use automation rules simultaneously with skip zones (**Settings** menu ➔ **General** ⇨ Skip zones) to avoid conflicting logics!

TIP! If you need to switch the AUTOMATION ON/OFF manually, use the ***Automation*** button in the main ***AirBox*** window.

If you need to switch OFF the **Audio output** on certain clips, you can use the following Action script: {!MUTE_ON!}.

Type {!MUTE_OFF!} in the *Action* script to switch the audio back ON.

(!) TIP: If you use the ***Next*** command in ***AirBox***, all graphic rules that would have been executed in normal playback will be executed at once. This might cause an unpleasant flickering of your graphics. To avoid this, check ☑ *Skip this action on Next*.

(!) TIP: If some of the information that should be displayed in the graphics object is missing in the playlist, you can skip sending the whole command by checking ☑ *Skip this action if there is an empty field*.

(!) TIP: To enable/disable a Graphic rule or an entire Rules group, select it and press the ***Enable/disable*** button. If you want to disable the use of all graphic rules, just un-check ☐ *Use graphic rules for current AirBox* in the top of the Graphic rules window.

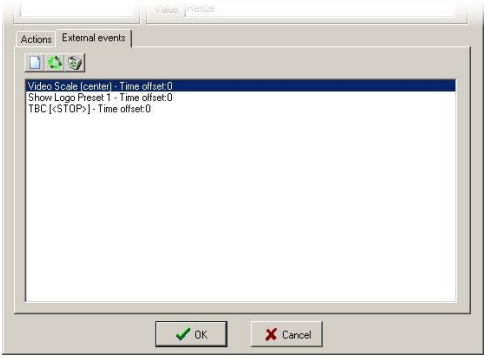
(!) TIP: You can rename a group or a rule by clicking in it while it is selected. To move rules from one group to another, just drag-n-drop them.

If you need to assign some events to be executed instead of the above actions, you can do that in the ***External events*** tab.

Like in other set-up dialogs, you can choose the event type after pressing the ***New event*** button.

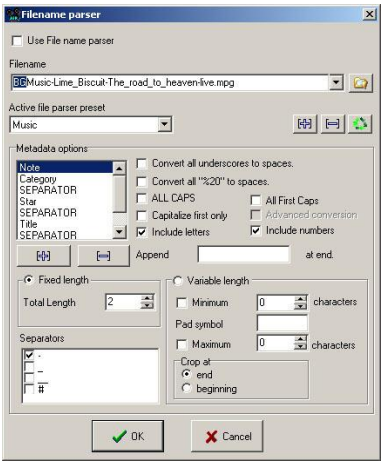
The event settings dialog varies according to the event type you choose. Please check the events' descriptions in the Edit menu section above.

NOTE: the list of available



events will contain only the plug-ins that have been enabled in **Settings** menu ➔ **Modules** ⇨ ***Remote***.
Please note that by default, all events will be executed simultaneously. If you want to execute some of them later, please specify the required positive offsets.
NOTE: Negative offsets will not be executed!
IMPORTANT: Please make sure not to overlap later offsets with other clips' graphics rules!

III.4.13. Filename Parser



This module will allow ***AirBox*** to Parse names of files and get information from them. It provides an easy way to use information included in the file name, without using a database. You will make the most advantage of this feature if you have standard naming structure for your clips.

In this setting dialog box, you have to "tell" ***AirBox*** how you name files, so it will "know" what do certain parts of your filenames mean. The dialog box is divided in three zones – the uppermost zone provides options to write/browse for a sample filename and to set general "parsing rules" – presets; in the middle zone you should "explain" the naming structure by including metadata fields; and in the lower zone you can specify the properties of each metadata field.

Have a look at the following example to make it clear to yourself.

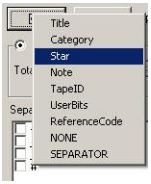
Let us pick a sample filename like ***BGMusic-Lime_Biscuit-The_road_to_heaven-live.mpg*** – write it in the *Filename* field. You could also browse for existing files, or choose from the drop-down list of filenames after pushing the arrow button to the right of the Filename field. The drop-down list contains all filenames of the currently loaded playlist.

This is a possible way to name music files – **create a preset** (let us call it **Music**):

Push the *Plus* button situated to the right of the *Active file parser preset* Field . A dialog will prompt you to name the new preset. You can rename it later on by pushing the *Recycle* button, or delete it by pushing the *Minus* button.

Once you have entered the preset name, you can start "explaining" the naming rules. Let us go back to the sample filename – you can see that its structure contains (in order of appearance) an abbreviation (**BG**), a category name (**Music**), a separator (-), a name of a performer/star (**Lime_Biscuit**), another separator (-), a title (**The_road_to_heaven**), one more separator (-) and a note (**live**), followed of course, by the file format. This is what you have to "tell" ***AirBox***. Here is how:

In the Metadata options area, use the Plus and Minus buttons to add/remove parser fields. You can select from the available types of fields. In our example, you have to enter one by one: Note (it will stand for the abbreviation **BG**), *Category,* SEPARATOR, Star, SEPARATOR, Title, SEPARATOR, and *Note*. If you want to skip some information in the filename, select *NONE* in the relevant position. Do not forget to set which symbols are regarded as separators (check the relevant boxes in the lower left corner). Here, exclude the lower dash from the separators list, at it represents the space within the separate fields.



To the right of the Metadata fields list you can see a number of checkboxes that provide some conversion options:

☑ *Convert all underscores to spaces* - in our case **Lime_Biscuit** will become **Lime Biscuit**.

☑ *Convert all "%20" to spaces* is not applicable in our case, but otherwise you can use it for downloaded files (their names often happen to contain "%20" instead spaces)

☑ *ALL CAPS* will turn all letters in the filename in upper case.

☑ *All first caps* – capitalizes the first letter of each word in the relevant metadata field

☑ *Capitalize first only* – capitalizes only the first letter of the relevant metadata filed

☑ *Include letters and* ☑*Include numbers* are checked by default. If you uncheck some of them, the filename parser will ignore the relevant characters (i.e. will not include them in the field).

You have to set your preferences for each metadata field separately (select it by clicking on it).

Finally, you have to specify the length of each metadata field.

This is not a problem if you choose to name your files with fixed length per each field – ⦿check the *Fixed length* flag and specify the number of characters using the arrows. The corresponding characters in the *Filename* field will be highlighted in blue so that you can see your setting.

However, setting variable lengths is a little bit trickier. ⦿ Check the *Variable length* flag in the lower right field and then specify minimum and/or maximum characters to be included in the relevant metadata field. If you have set a *Minimum* value, but the relevant metadata field contains fewer characters, you will need some *Pad symbol* to fill-in the gab.

If you have set a *Maximum* value, but the relevant metadata field contains more characters, you will have to insert a *NONE* field before the *SEPARATOR* field, thus telling ***AirBox*** to ignore the remaining symbols to the separator.

Back to our example, **Lime_Biscuit** contains 12 symbols. If we set minimum value 15 and Pad symbol (*) for the Star field, the Filename Parser will display **Lime Biscuit*** in the playlist grid. If we set a maximum of 9 symbols for the Star field, the Metadata fields list should contain "… *[Star], [NONE], [SEPARATOR*]…" instead of "… [*Star*], [*SEPARATOR*]…". You can change the positions of the metadata fields by drag-n-dropping them.

Append … at end field gives an opportunity to add character(s) to the end of a metadata field.

Some fields, like **Title**, **Category**, etc., are displayed directly in the ***AirBox*** grid.

Others, like **Tape ID** for example, may provide information to ***SubTitle Plus*** (www.subtitleplus.com) or ***SubtitleBox*** (see below) for proper display of corresponding subtitles. When you use the filename parser to display subtitles, you have to create a preset with naming structure [*Tape ID*] and [*SEPARATOR*] and the fields' length should be set to *Variable*. In the clip's properties dialog, fill in the same *Tape ID* as of the subtitle file.

NOTE: In order to use the potentialities of the *Filename parser* module, you must set it first and then add files to the playlist. THE MODULE CANNOT PARSE AN ALREADY LOADED PLAYLIST because it already contains all the metadata for the relevant clips included in it.

WARNING! If in the newly-loaded playlist there is any information in the fields that are also used by the Filename Parser preset, this information will be overwritten!

III.4.14. Admin…

A brand new menu item, the **Admin…** aims at raising the security of ***AirBox***. The idea for password protection of some settings that might be crucial to playback performance is already a fact.

The first time you enter this menu item, you will have to go to the *Change password* row. Clicking in it will open a dialog box containing three cells – *Old password*, *New password* and *Confirm password*. As this is the first time you enter this menu item, leave the first cell empty, then write your password twice – in the second and in the third cell (in case you are interested, your password can contain up to 256 symbols). Click ***OK***.

WARNING! Make sure not to forget the password!

Now you are already logged on. To restrict the access of all other users to the Settings menu, you just have to log off. Almost all menu items will become inaccessible – at any attempt to enter, password will be required.

The only exceptions are Colors (as they will not affect playback); *Enable* SubtitleBox (but not *Configure*); and Mirror mode (*Full mode*, *Idle mode*, *Change dongles*, but without configuring).

If you decide not to use password protection anymore, just go to Change password and write the old password in the relevant field. Leave the *New password* and *Confirm password* fields empty and click *OK*.

III.4.15. Save/Load Config

If you need to configure several playout servers the same way, you can use these two options to copy setting and apply them to other machines. Thus, you will avoid configuring all your machines one by one.

You can export the settings of all ***AirBox*** channels on the machine or only those of the currently open channel.

To export the settings of the current ***AirBox*** instance, go to **Settings** menu ➔ **Save config**, and select the AirBox #... line. The resulting file has extension *.pb1*, which means that it contains settings for only one ***AirBox*** channel.

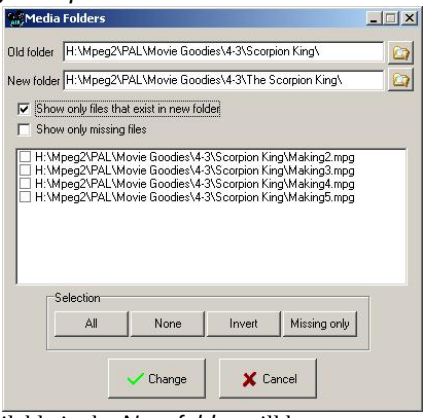
WARNING! Please make sure to name the channel-setting file after the instance name, so you will know for sure which channel's settings are contained in it. Later, when you try to load the *.pb1 file on another system, ***AirBox*** will not be able to distinguish which channel's settings do you load; therefore you need to know this by the filename.

To export the settings of all ***AirBox*** channels, select All ***AirBox*** instances…. The resulting file has extension *.pb0*. Later, when you load it on another machine, it will affect all ***AirBox*** channels available there.

III.5. Tools Menu

This menu was created to accommodate some useful tools in ***AirBox***.

III.5.1. Change file path…



This module is intended for relocating file paths. If you have built a playlist and for some reason the file locations have been changed, here you can quickly relocate file paths. It is easily done: fill in the *Old folder* field with the original location, and then fill in the *New folder* field with the new location. You may browse for path with the button.
There are two view options:

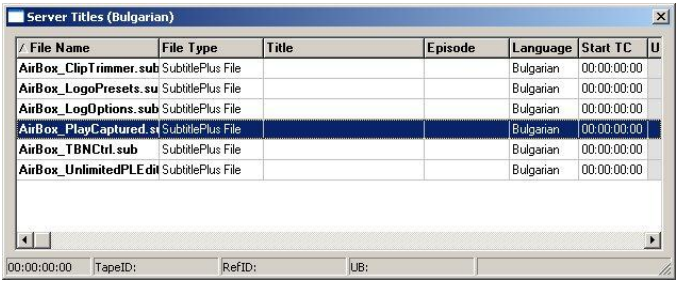
- if you check ☑*Show only files that exist in new folder*, only the files that are available in the *New folder* will be displayed in the list underneath;
- *Show only missing files* displays only those files from the playlist that are Missing.

The *Selection* modes are self-explanatory and give opportunity for fast selecting/deselecting of all items, inverse and missing only selection.
When the ***Change*** button is pressed, the file paths are relocated and this is reflected in the playlist immediately.

III.5.2. SubtitleBox

SubtitleBox is an optional plug-in to the ***AirBox*** module. It enables using subtitles together with your running clips. ***SubtitleBox*** does not provide any editing options; it just shows your subtitles synchronized with your clips. The supported subtitle formats are the ones created by our own subtitling software ***Subtitle Plus*** – www.subtitleplus.com (***.sub**); Screen Subtitling/Win2020 (***.pac**); and EBU t3264 (***.stl**). It is best to use ***SubtitleBox*** with ***Subtitle Plus*** native files. They contain the TapeID (the reference to the corresponding media files), so ***SubtitleBox*** could "know" when to load and display the subtitles for each clip.

Enable the plug-in and configure it. The only things you need to specify in the ***Configure…*** dialog box are the folder where your subtitles are (Watch directory), and the language you are using. Press the ***Show filelist*** button to view all the subtitle files contained in the Watch directory:



SubtitleBox will take care of broadcasting your subtitles, according to the playlist loaded in ***AirBox***.

NOTE: Make sure the ***Filename parser*** is set to a preset with naming structure [Tape ID] and [SEPARATOR] before you load the playlist. Check the ⊙*Variable length* radio button. In the clip's properties dialog, fill in the same *Tape ID* as of the subtitle file. Otherwise ***AirBox*** will not display the subtitles.

III.5.3. Mirror Mode

The Mirror mode is another optional plug-in available for ***AirBox***. The Mirror mode provides options for full redundancy of your main playout unit against system failures such as power loss, broken motherboard or RAM, etc. In order to use this option, you must have two licenses for ***AirBox***, running on two different workstations with a network connection between them. For the sake of convenience, these are called Master and Slave hereafter. They communicate via TCP/IP protocol.

Failure actions:

There are two possibilities to back up your ***AirBox*** in case an unrecoverable failure of the Master ***AirBox*** occurs (the master ***AirBox*** server is down for a long period, faulty motherboard, CPU, RAM, etc.):

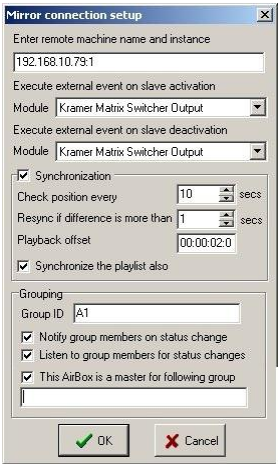
1. When there are two fully functional ***AirBox***es on both machines, plus one ***AirBox backup*** license on your Slave machine: In this scenario, you just have to uncheck the Mirror mode on the Slave machine and continue working with the full ***AirBox*** functionality.

2. When there is one fully functional ***AirBox*** installed on the Master machine and one ***AirBox backup*** (with limited functionality) on the Slave machine: In this scenario you will have to attach the full ***AirBox*** dongle to the Slave ***AirBox*** server and use the **Change Dongles** menu command in order to operate the full functionality on the Slave machine. Obviously, the master machine does not need a dongle while faulty.

NOTE: When ***AirBox backup*** is a stand-alone license, ***AirBox*** will start in Mirror Mode automatically. No full functionality available!

To set the Master, start ***AirBox*** and check ☑ *Enable IP remote control* in **Settings ➔ General ⇨ *General***. Otherwise, the Slave machine will not be able to connect to the Master.

To set the Slave, go to **Tools➔ Mirror Mode➔ Configure…** and do the following settings in the ***Mirror connection setup*** window:



In the topmost string, enter the Remote machine IP address or name.

The BackUp can execute some external event on connection/disconnection to the Master. This is useful for example to auto switch a video switcher to another input/output when the Master unit fails or when you switch back to it.

Execute external event on slave activation – this event will be executed when the current

AirBox is switched to BackUp mode. For example, if the Master has been down for some time and now it is running OK, so you want to start the main play back from it again.

Execute External event on slave deactivation – this event will be executed when the Master fails and the current BackUp takes over the playback.

NOTE: For switcher control on connection/disconnection you need the PRO option enabled on your dongle.

The lower half of this window concerns the synchronization between the Slave machine and the Master machine. Do not forget to check the ☑ *Synchronization* box if you need it.

Set the frequency of position enquiries to be sent by the Slave to the Master in the *Check position every…sec* cell (the least allowable is 10).

Below, you can set the maximum allowable difference (in seconds) between the Master and the Slave playback. If the difference goes beyond this value, the Slave machine will have to resynchronize to the Master.

Playback offset value compensates the delay that may occur because of some additional factors (e.g. the network communication delay or backup playback reaction time).

Check ☑ *Synchronize the playlist also* if you want to check the playlists at each resynchronization. This is a "double insurance" in case some playlist data is lost during the IP communication.

It is possible to **group** several Slave machines to operate together. The Group-related settings are situated in the bottom of the Setup dialog.

The purpose of Grouping is described in the example below.

Let us assume that we have three ***Master AirBox*** channels. Their outputs are connected to one external device (let us call it **MasterOut**). The output of **Master Out** sends the three signals together (as a Multiplexer would do).

There are three ***Slave AirBox*** machines, listening to the three Master machines. The outputs of the Slaves are connected to another external device similar to that of the Masters (we will call this device **SlaveOut**).

The outputs of **MasterOut** and **SlaveOut** are connected to a switcher.

In case any of the masters fails (for example AirBox 2); Slave 2 will take over the playout. But the **MasterOut** device will be outputting only the signals coming from AirBox 1 and AirBox 3. The signal of Slave 2 (that substitutes AirBox 2) will be output on the **SlaveOut** device. In order to have all signals output on one device, we have to start the playout on Slave 1 and Slave 3 and switch from **MasterOut** to **SlaveOut**.

Therefore we have implemented the option for grouping Salve machines. Thus, in case one of the slaves in the group starts playing, it will "tell the others to start playing, too and the switcher will be switched automatically from **MasterOut** to **SlaveOut**. Now, you have the three signals output together again.

Back in the Mirror connection dialog, there are three fields to setup Grouping:

Group ID – fill in the name of the group of Slaves. This name should be the same in all Slave machines that belong to this group, so you have to fill it in each Salve's Mirror connection dialog.

☑ *Notify group members on status change* – enable this so the current Slave will report its status to all other Slaves in the group. If you do not want this Slave to control the whole group, leave this check unchecked.

☑ *Listen to group members for status changes* – check it if you want the current Slave to start/stop playing when any Slave in the group starts/stops. If you do not want this Slave to be affected by the status of other Slaves in the group, leave this check unchecked.

☑ *This AirBox is a master for following group* - check it to define a current ***AirBox*** as a master of the group.

The Mirror mode has two major sub-modes: **Full mode** and **Idle Mode**.

Full Mode:

The Slave and the Master ***AirBox*** are always playing the same content simultaneously.

Benefit: The Slave channel always runs in perfect sync and you can switch over to it any time.

Disadvantage: This will double the network traffic since the two ***AirBox*** servers will be transferring data at the same time.

Idle Mode:

The Slave ***AirBox*** is staying idle and listening to the master ***AirBox*** activity. If the Master ***AirBox*** stops responding, the Slave ***AirBox*** will start playing immediately from the same point at which the Master ***AirBox*** was last.

Benefit: No additional network traffic overhead.

Disadvantage: It might take up to a second to start the playback process from the point it failed. The information about all previously executed external events will not be preserved. Thus, if the Master was running in video scale mode before the failure, the Slave will precede outputting full-screen video.

In both modes whenever you change anything in the master ***AirBox*** playlist, the backup ***AirBox*** does the same automatically.

Regardless of the mode, you will always use content files that are stored either on local or on network storage.

The easiest approach is to use content ONLY from a redundant network-attached storage (NAS) or SAN. This means that the Slave ***AirBox*** will use the same file path as Master ***AirBox*** to locate the content files.

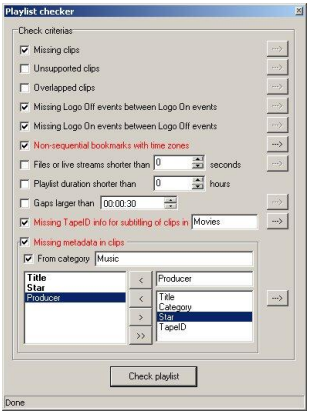
If you are going to use local content files, or a mixed approach, then you should install ***SafeBox*** (see the ***SafeBox*** section for details) on the Slave ***AirBox*** machine. Its task will be to replicate (copy) automatically the new-coming content from the Master ***AirBox***' local storage to the local storage of the Backup ***AirBox***.

The **Change dongles** option will allow you to change the dongle (WIBU-key) of a currently playing unit without interrupting the work of the ***AirBox***. Thus if your Master machine is down and you need the full functionality on your Slave machine, you will be able to change the dongle on the latter without interrupting its playback. After you have inserted the new dongle, press **Tools➔ Mirror Mode➔ Change Dongle** and the new dongle will be recognized.

IMPORTANT! The BackUp machine should run the same software version as the Master machine!

III.5.4. Playlist Checker

This tool checks the playlist for inconsistencies. Enable the criteria you need by ticking the box in front of them.



Below you will find description of some of the checking criteria:

☑*Overlapped clips* – this check is related to fixed-start time clips that overlap previous clips in the playlist.

☑*Non-sequential bookmarks with time zones* Bookmarks with time zones should be situated in sequential order, i.e. following the normal time flow. This means that bookmarks with earlier time zones should be situated up in the playlist, while bookmarks with later time zones should be placed down the playlist. This will ensure its correct execution.

☑*Gaps larger than*… – when using fixed-start times and there is not enough content to go before them, gaps are formed in the playlist.

☑*Missing TapeID info for subtitling of clips in* [Category name] – Subtitles are shown based on the TapeID of the clip and the currently running time code. If a Tape ID is missing in a clip's properties, no subtitles will be displayed over it. Therefore, it is important to make sure that all TapeIDs are in place. Just specify the category of clips that require subtitling and check if all of them have TapeIDs in their properties.

☑*Missing Metadata in Clips* – this field contains settings for verifying the availability of all metadata, usually needed for Graphic rules.

Metadata are described in clip properties. Each metadata has a name and value, where the name represents a category and the value represents the information about this category. Please check the Metadata description in the manual above. The playlist checker uses the metadata names as reference and checks the presence of the corresponding metadata values.

☑*From category* [Category name] – here you have to specify the category of the clips you want to check, for example clips that belong to category Music.

To the left below is situated the list of metadata fields to be checked. You can pick them from the list of presets to the right: Just select the Metadata name you need and press the < button to add it.

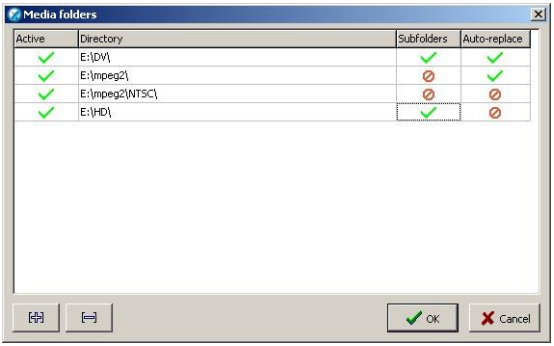
If the Metadata name is not available in the list of presets, create a custom name in the string above it and press the < button to add it to the left.

To remove a metadata name from the check-list, select it in the list to the left and press the > button.

To clear the whole check-list, press >>.

If the Playlist checker finds an inconsistence, the relevant criterion turns red. The arrow to the right of it becomes active. Press it do view the list of inconsistencies sorted by their position in the playlist.

III.5.5. Media Folders



This tool was developed to allow specifying watch folders that might contain media files. Thus, if there are missing files in a playlist, these folders will be searched automatically on playlist loading.

NOTE: Media folders do not operate run-time! You need to reload the playlist in order to check the watch directories.

To add a new watch directory, click on the plus sign and browse for it. As soon as it is inserted in the list, you can adjust its settings:

Double-click in the **Active** column to enable watching the folder described in the line to the right.

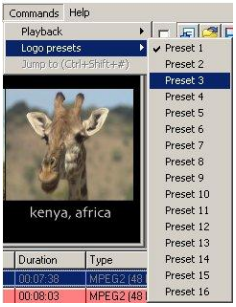
If you want ***AirBox*** to parse the sub-directories of a selected watch folder, double-click in the **Subfolders** column to turn the closed sign into a green tick-mark.

Auto-replace – this function will update the file paths of the missing files upon saving the playlist. If not enabled, the new location of files will not be saved in the playlist.

III.6. Commands Menu

This menu contains commands, related to playback and logo presets. The available commands are:

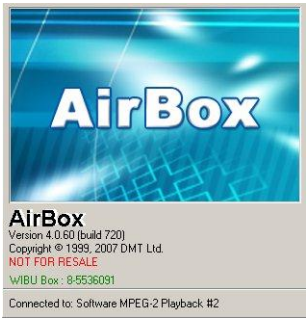
Playback commands: this menu duplicates the playback control buttons, situated under the master counter (***Play/Stop/Pause/Next/Jump/Return***). The commands are executed just by clicking the appropriate field. To user's convenience, relevant shortcut is written to the right of each command.



Logo presets: here you can trigger logo presets through clicking them. The preset numbers correspond to those in **Settings** menu ➔ **Logo** dialog.

Jump to: This is just a shortcut – Ctrl+Shift+#. Using it, you can jump to a clip at your will. Just press and hold down <Ctrl+Shift>, enter the desired clip's number and then release the <Ctrl+Shift>.

III.7. Help Menu



This menu contains useful information about the ***AirBox*** module and the possibilities for getting technical support from us.

PlayBox Help: opens the ***AirBox*** context-sensitive help.

About…: Displays the "About" box of the ***AirBox*** module. It contains useful information such as: module version, WIBU Box number, mode, registration, etc. In the bottom is displayed the name of currently selected platform.

PlayBox Doctor: this module gives the opportunity to generate easily complete problem reports. It is integrated in each *PlayBox* module. It can gather almost all the information needed for *PlayBox* support team in order to provide you with the prompt answers, without too many questions about your system configuration.

The Basic User's manual contains a detailed description of the PlayBox Doctor Report and other functionalities. If you do not have the Basic manual, you can download it in our website – www.playbox.tv → Support → Download → PlayBox Literature.

IV. Universal Matrix Controller

The Universal Matrix Controller (UMC) is an additional tool developed by ***PlayBox Technology*** intended to:

- Provide centralized control of matrices (switches)
- Allow multiple ***AirBox*** servers or other applications to share the same hardware
- Guarantee playout stability when used in combination with the **Multi-Backup Manager**

The UMC is a server application communicating with its clients via Universal Matrix Plugin (UMP). The UMP replaces the existing matrix specific plugins currently used with ***AirBox***.

More than one UMC may be installed for redundancy. The physical configuration of each UMC is individual and depends on the specific installation. Different redundancy configurations are possible:

- UMC servers with separate set of matrices (full redundancy)
- Backup UMC (partial redundancy)

IV.1. Installation and setup

Copy ***umc.exe*** file to any folder on your hard disk. Run the application.

The next window will open. There are three main set-up tabs: Abstract **Units, Devices and UMC Configuration.**

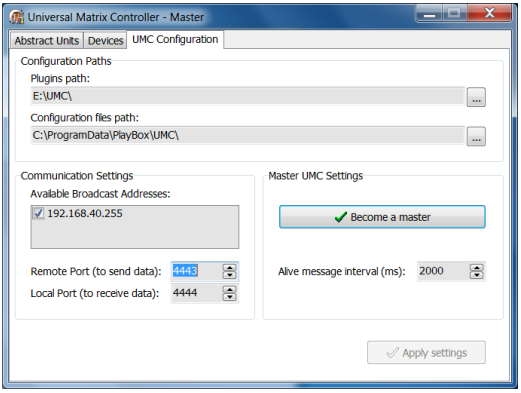
First, you have to define the main UMC settings. Then go to devices tab and select needed matrix plugins. Finally, go to Abstract Units to define the logical devices. In ***AirBox*** and MBM, you will use logical devices names. UMC will take care to "translate" this logical name and connect the application to the real device.

➢ **UMC Configuration** settings:

Configuration paths:

- ***Plugins path*** – specifies the location of matrices plugins. *For example*: *LeitchSwitcher.dll, Kramersw.dll, etc*.
- ***Configuration files path*** – this is the location where the UMC stores the configuration data.

Communication settings:



- ***Broadcast addresses*** - The UMC automatically scans the network and locates the available broadcast addresses. You may enable or disable broadcasting to specific address by checking / un-checking the respective checkbox.
- ***Ports***: The default port for sending data to the clients is **4443**. The default port listened by UMC is **4444**.

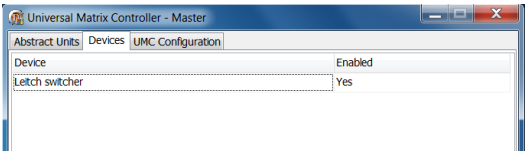
Master UMC Settings

These settings are relevant only when more than one UMC is installed.

- ***Become a master*** button – used to force UMC to become Master
- ***Alive message interval*** defines how often UMC should check the status of the other UMC servers in the system.

Use **Apply settings** button to save UMC configuration.

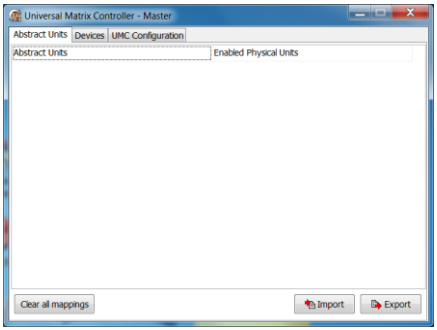
➢ **Devices**



On startup the UMC displays a list of the available matrix plugins. Enable the plugins you need by setting **Yes** in the **Enabled** column for the appropriate plugin (double-click in the column toggles the value). The hadrware related configuration depends on the matrix type. Each matrix plugin provides the user interface for matrix setup. Double-click on the device name to open the configuration panel.

➢ **Abstract units**

To manage the abstract units select the **Abstract Units** tab



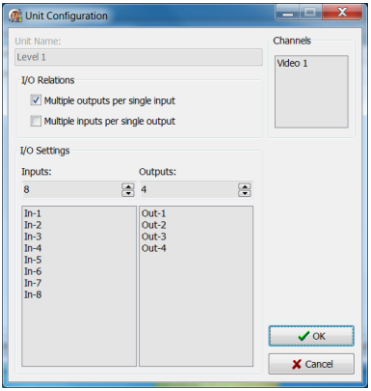
Each device may have one or more physical units depending on the matrix type. Some matrices contain only one unit, while other may have multiple in-built hardware units. The units are uniquely identified by their name. The ***AirBox*** has no direct connection to the physical units. It works with abstract (logical) units. The abstract units are mapped to the physical units. You can define as many units as needed, there is no limitation.

There are two main areas in the dialog window: for abstract units and for physical units.

Abstract units area

To add an abstract unit right-click in the **Abstract units area** and select **New abstract unit** from the pop-up menu. The **Unit configuration** form appears.

Enter **Unit name** for the abstract unit. Check the I/O relation type corresponding to your configuration. Enter the number of **inputs** and **outputs** you need – you may have different number of inputs and outputs. For example, 8 inputs and 4 outputs. Define unit's channels

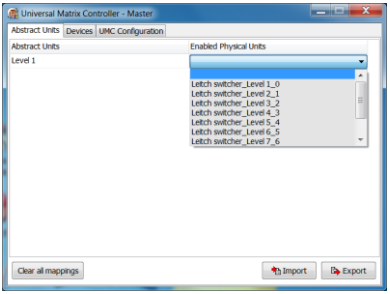


Each unit may have one or more channels. *For example*: video, audio, RS-422, other. Use the pop-up menu on right-click in the **Channels** area to **Add** a new channel, **Delete** a selected channel or **Delete all** channels.

Each channel has a unique name within the unit**.**

At least one channel has to be defined.

Save the settings by pressing **OK** button.



Physical Units area

After specifying the parameters of the abstract unit, you have to map it to a physical unit. Use the drop-down list in

Enabled Physical Units column to select a physical unit.

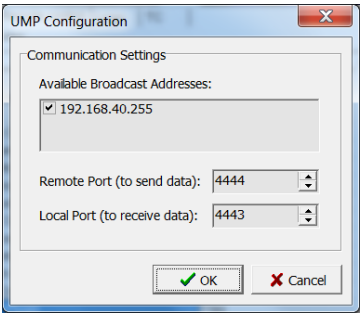
In order to edit or delete an abstract unit, select it and right-click over it. From the pop-up menu, choose respectively **Edit** or **Delete** command.

IV.2. Communication with AirBox

UMC communicates with the ***AirBox*** servers through the Universal Matrix Plugin (UMP). The UMP replaces the matrix specific plugins currently used in ***AirBox***.

Universal Matrix Plugin Setup

Run ***AirBox*** and select **Settings –> Modules –> Remote control**. Enable **UMP plugin** (double-click in **Enabled** column). Double-click on the UMP plugin row to open the configuration settings. Select the broadcast addresses to be used, and if necessary change the default ports. Save the settings.

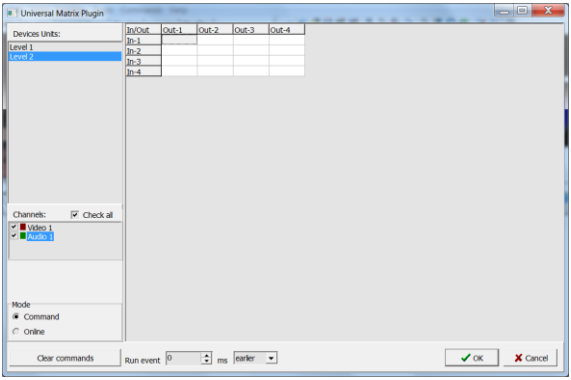


Add / Insert matrix control event

It is assumed that at least one UMC is up and running and that the UMP in ***AirBox*** is configured properly and enabled.

To **Add** or **Insert** a matrix control event in the ***AirBox*** playlist Right-click in ***AirBox*** playlist grid, select **Add** (or **Insert)** from the pop-up menu, and then select **Event –> Universal Matrix Plugin.**

The **Universal Matrix Plugin** window appears.



The **Devices Units** panel contains a list of the available abstract units as defined in the UMC.

The **Channels** panel displays the channels of the selected unit. You may select some of the channels or all of them.

The **Mode** panel defines the mode of operation of the UMP. There are two options:

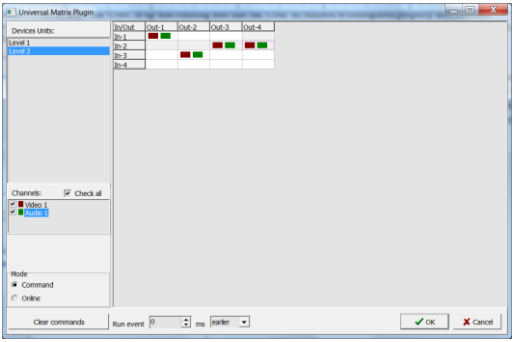
- **Command** mode – used to define cross-points off-line. The settings are not sent to the UMC before confirmation with **OK.**
- **Online** mode – the current matrix settings are displayed. Any change of the cross-points becomes active immediately.

Clear commands button is enabled ONLY in **Command** mode. It deletes all cross-points (off-line).

It is also possible to manipulate the event start time. There are 3 options:

- Switch the matrix immediately (as soon as the playout reaches the event in the playlist) - Set **Run time** to **0** ms.
- Switch the matrix earlier - Set **Run time** to the desired number of milliseconds and select **earlier** from the drop-down list
- Switch the matrix with delay - Set **Run time** to the desired number of milliseconds and select **later** from the drop-down list

To create a cross-point, Select **Command** mode. Then Select the appropriate cell and press CTRL+Click . The cross-point is marked with colour bar. When more than one channel is selected, more bars are displayed in the cell.



Click **OK** to save the settings. The event for matrix switching will be added/inserted in the playlist.

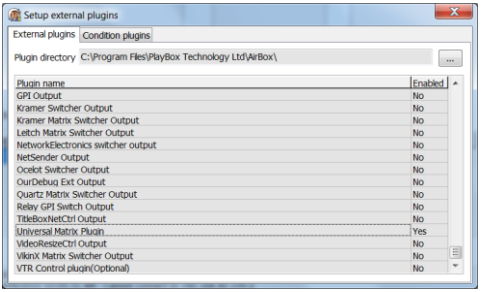
Click **Cancel** to go back to ***AirBox*** main window without creating an event.

IV.3. Communication with Multi-BackupManager

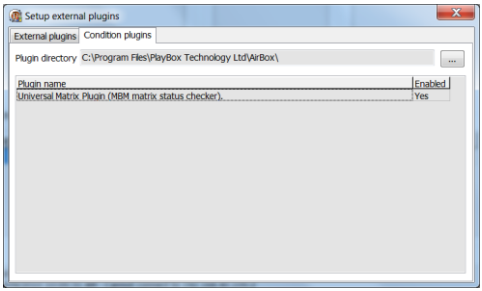
The ***Multi-Backup Manager*** ***(MBM)*** provides redundancy of multiple playout channels using a list of predefined **Master** and **Backup *AirBox*** servers. It constantly monitors the status of all **Master AirBox servers** and in case of failure of any of them, transfers all on-going activities to one of the specified **Backup playout servers**. If the system configuration includes matrices for remote playout control, the **MBM** will need information about the current status of these matrices in order to be able to undertake the correct actions. This information is provided by the UMC through the UMP. The user may define conditions that will trigger different **MBM** actions depending on the status of the matrices in the moment of switchover.

IV.3.1. Universal Matrix Plugin setup

Run **MBM**. Select button from the toolbar. Enable the Universal Matrix Plugin by double-click in **Enabled** column (double-click toggles the value).



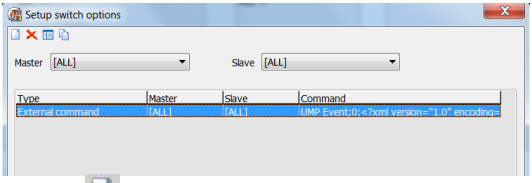
In order to create a condition for switching the matrices in case of **Master AirBox** failure, Select **Condition plugins** tab.



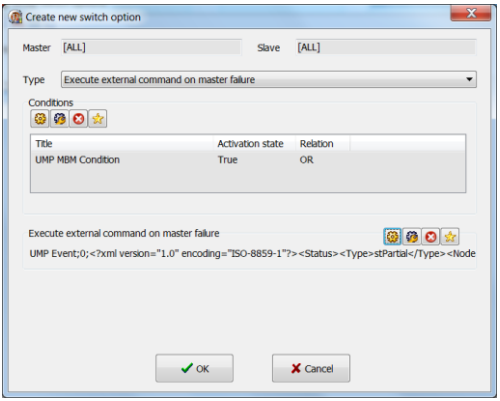
MBM automatically checks for available conditional plugins and displays them in the grid. If the UMP plugin is not in the grid, specify the **Plugin directory** containing the **UMP.dll** file

Enable the UMP conditional plugin by double-click in **Enabled** column and close the **Setup external plugins** window.

Select button from the toolbar of **MBM** main form to create a switch rule. The **Setup switch options** form appears.



Select button from the toolbar of the **Setup switch options** window to **Create a new rule.** The **Create new switch option** form appears.

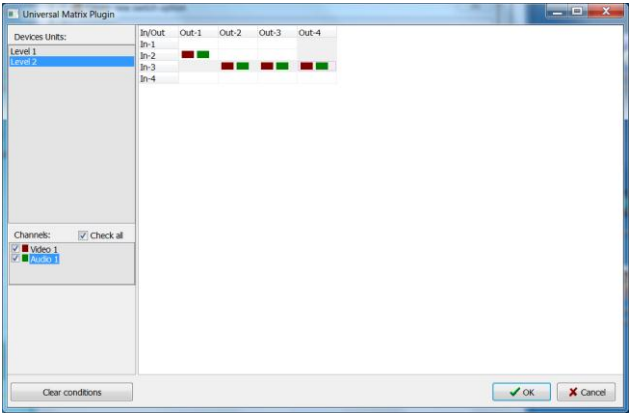


From **Masters** drop-down list select the *IP address* of the **Master AirBox** for which the rule will be valid and from **Slaves** drop-down list select the *IP address* of the **Backup AirBox**

From **Type** drop-down list select *Execute external command on master failure*.

Click on button from **Conditions** toolbar and select the Universal Matrix Plugin checker to create a new condition.

You have to specify a matrix status to be compared with the real matrix status at the moment of backup switchover. If the current matrix status matches the specified in the condition status, the UMC returns true state, else it returns false state. To specify the conditional status, in the Universal Matrix Plugin form select the desired unit and set the cross-points to be compared (**CTRL+Click** in the selected cell). Save the settings.



Back to the **Create new switch option** form:

A double-click over the **Activation state** field toggles the value from **true** to **false,** and vice versa**.** The condition is satisfied if the conditional plugin returns status equal to the specified in the **Activation state**.
You can specify more than one condition.

A double-click over the **Relation** field toggles the value between **AND** and **OR** type of relation between the different conditions.

At the bottom of the **Create new switch option** form there is a field for defining the external command to be executed if the condition is satisfied.

Click on button from **Execute external command on master failure** toolbar. The Universal Matrix Plugin form appears again. This time you have to define the cross-points that have to be set if the **Master AirBox** fails **AND** the specified condition is true.

Click **OK** button, to save the newly created rule

V. Multi-Backup Manager

Multi-Backup Manager (***MBM***) is designed for backing up multiple playout channels simultaneously. Also known as "n+m" redundancy, MBM allows the user to choose the number of backup systems (example 4 backups for 12 on-air channels), reducing overall system cost while maintaining system integrity. ***MBM*** monitors user-defined lists with ***AirBox*** Masters and Slaves applications. If a Master is non-responsive for two seconds, it will be automatically replaced by a Slave ***AirBox***. Thus, in case of failure, ***MBM*** will replace any non-responsive Master ***AirBox***.

The user can assign a "preferred" Slave ***AirBox*** to each one of the Master ***AirBoxes***.

The playback status of all Masters is continually monitored.

MBM keeps track of the playlist, the last playback status and position of all Master ***AirBoxes***. In case of failure, the last known state of the Master (i.e. playlist, playback status and position) will be sent to the preferred Slave is non-responsive for two seconds, it will be automatically replaced by a Slave ***AirBox***.

If there is no preferred Slave specified (or it is not available), ***MBM*** will transfer the playlist to the first available Slave.

WARNING! Keep in mind that the actual media files from the playlist won't be transferred, but only the playlist. PlayBox recommends having all the media files on the Slave machine. For convenience, these files can be automatically transferred to the Slave machine by using the ***SafeBox*** module (for more information, see the relevant chapter further in the manual).
NOTE: When you have to cover multiple channels using ***MBM***, an ***AirBox*** Backup license is not required.

V.1. GETTING STARTED

V.1.1. Installation

Multi-Backup Manager is usually installed on one of the computers in your local network. It "watches" all ***AirBoxes*** through the network. It is not recommendable to install ***Multi-Backup Manager*** on a playout machine.

WARNING! Prior to start the MBM application, it is recommendable your firewall to be disabled!

V.1.2. Quick start

1.Launch the ***Multi-Backup Manager***.

2. Push the ***Manually add new Master***/ ***Manually add new slave*** buttons, in order to create the Master/Slave monitoring lists.

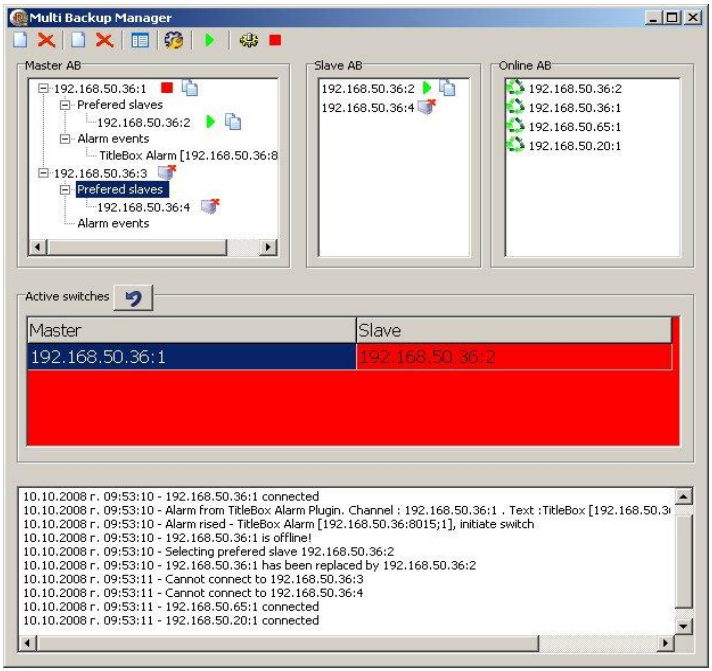
3. Type the address of the relevant Master/Slave and its instance (for example 192.168.50.27:2, where ":2" is the number of AirBox #2).

4. ***MBM*** will "watch" the playlist of each newly added **AirBox Master**.

5. In case of failure, MBM will replace it with one from the Slaves you have specified.

V.2. USER INTERFACE

The main window of this application is consisting of a ***TOOLBAR***, ***MASTER AND SLAVE CONFIGURATION FIELDS***, ***ACTIVE SWITCHES MONITORING WINDOW*** and ***LOG VIEW***.



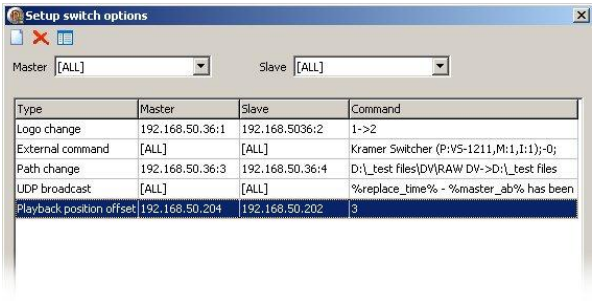
V.2.1. The Toolbar

The supported features, situated in the Toolbar are as follows:

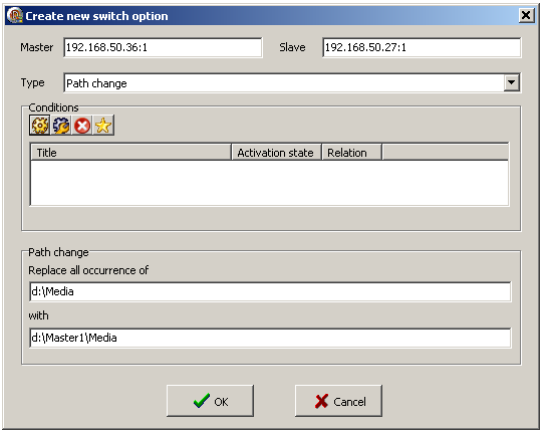
- ***Manually add Master*** – here you have to type the address of the Master ***AirBox.***
- ***Delete selected Master or preferred Slave*** – deletes a selected Master from the *Master AB* configuration fields or preferred Slave.

- ***Manually add new Slave*** (in the second pair buttons) – adds new slave ***AirBox*** in the *Slave AB* configuration window.
- ***Delete selected Slave*** (in the second pair buttons) – deletes a selected Slave ***AirBox***.

- ***Setup switch rules*** – You can adjust a special rule (i.e. command) to be executed in case of ***AirBox*** replacement. The rules can concern a particular Master or all Masters. A rule can affect just one or all the Slaves. Pressing this button will open the **Setup switch options** dialog:



The three buttons, situated at the upper left corner above the grid, are used for creating, removing and editing rules. The Master and Slave drop-down lists are intended for filtering purposes. They are useful for searching a rule concerning a particular ***AirBox***. If "[ALL]" is selected, all currently available rules will be shown in the grid. Double-click a rule to modify it, or click the button to create a new rule. If you do so, the **Create new switch option** dialog opens.



At the header of this window, there are **Master** and **Slave** fields, where you have to enter the **IP** addresses for the Master and Slave ***AirBox*** for which the rule will be valid.

In the **Type** field, you have to select the switch option from a drop-down list.

Into the **Condition** field, you have to specify a matrix status which to be compared with the real matrix status at the moment of backup switchover. If the current matrix status matches the specified in the condition status, then the switch option will be executed. Else, the switch option will not be executed.

Click on button from **Conditions** toolbar to select the Universal Matrix Plugin checker to create a new condition. More about using the Universal Matrix Plugin in **MBM**, you can read in the section IV.3.Universal Matrix Plugin - Communication with MBM above.

Click on button from **Conditions** toolbar, to edit the selected condition. Click on button to delete all settings of the selected condition. Click on button to check the selected condition's state at the moment.

The rest part of the **Switch option** dialog varies according to the **Type** you have chosen.

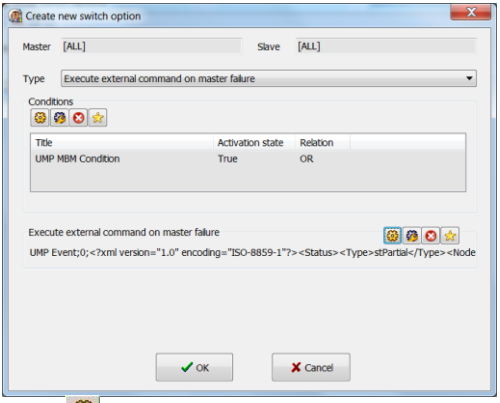
⊙*Path change* – each playlist contains paths, indicating where its local files are. For the playlist to be valid for the Backup ***AirBox***, you have to create a rule for path changing. For example, assume your ***AirBox*** Master is playing out from D:\Media, but the content for the Backup machine is on D:\Master1\Media. Thus, after transferring the playlist, ***AirBox*** Slave will not be able to locate media files containing a different file path. For this

case, create a rule for one particular ***AirBox*** and one Backup. This way, in case of switch between those ***AirBox*** machines, the Backup has a valid playlist.

⊙*Logo change* – For example, if there are two ***AirBox*** Masters, but only one Slave covering them, we assume the user has copied all the logos from the Masters to the Slave. However, this means, that Logo Preset 1 on the first Master may correspond to another Preset number on the Slave machine. To avoid some confusion, swapping of the logo presets is user-definable. Thus, in the moment of switch between Master and Slave, the logo Presets will be changed automatically.

⊙*Execute external command on master failure*

If in case of switch between ***Master AirBox*** and ***Slave AirBox***, a command like matrix switch, GPI trigger, etc. must be executed, you can define this external command here.



Press the button from *Execute external command on master failure* toolbar to open a context menu with all enabled external plug-ins.

Press the button to edit the plug-in settings and running delay.

The button deletes all settings of the selected external command.

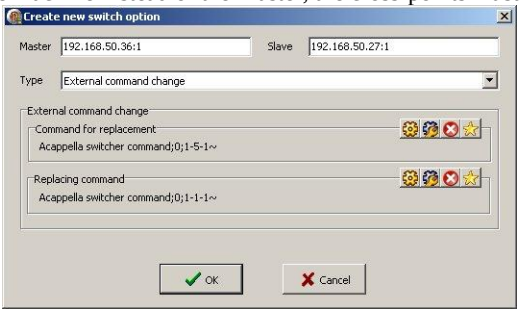
If you press the button, the specified command is executed immediately.

⊙*Execute external command on master recovery*

The same as above, but the external command will be executed on Master recovery, instead of on master failure.

⊙*Playback position offset* – This is intended, in order to compensate some delay, which may occur before slave could enter in playback state.

⊙*External command change* – This rule will replace an exact, concrete external event, contained in the Masters playlist with another command, predefined by the user.
For example, it is quite possible to have a file-based – tape-based playback, i.e. the ***Master AirBox*** to control a VTR. This involves Switcher events – one for switching to the VTR and another one for switching back to ***AirBox***. If the Master machine fails and there must be a switch from the VTR to the Slave machine instead of the Master, the cross-points must be changed.



⊙*Broadcast text via UDP* –You can enter a text to be transmitted on the specified UDP port. The text messages are supporting variable replacement.
%replace time% - will be replaced with the actual switch time.
%master_ab% - will be replaced with a name of Master ***AirBox***.
%slave_ab% - will be replaced by a name of Slave ***AirBox***.
If AB is pressed, a default alarming script will be set automatically.

⊙*Universal path change* – This setting will take only the name of the media files, contained in the Masters playlist, without their subdirectory paths, and will move the files to a location, specified from the user.

⊙*Save playlist* – this option is used for saving the Master's playlist to a predefined folder. In fact, this is one folder, which is a source location for a ***SafeBox*** module, working in Playlist mode. It is intended for moving the already saved (by ***MBM***) playlist along with the media files, contained in it to the Backup server (in case none of the media files are on it). In the meantime, the Slave ***AirBox*** uses reference paths, which indicate where each physical media file is. These references are generated by another ***SafeBox*** application, which is responsible for copying the files to the Master Server.

They indicate the source from which the files are moved (mostly it is the NAS storage). Once the files are copied to the **Slave AirBox** locally, they are not treated as network content anymore. Thus, the **Slave *AirBox*** continues playback locally.

- ***Setup External Plug-ins*** – press it to browse for the directory where are situated all the external plug-ins and the condition plug-in (Universal Matrix plug-in).

- ***Force switch for selected Master*** – if there is any preferred ***Slave AirBox***, this button allows you to switch to the first available preferred Backup ***AirBox***. If all preferred Slaves are busy or there are no such Slaves, ***MBM*** will switch to the first available Slave machine.

V.2.2. The Master and Slave configurations

In the upper part of the main dialog, there are the *Master AB*, *Slave AB* and *Online AB* configuration fields. The user has to specify which ***AirBox*** will be Master and which - Slave.

V.2.2.1. The Master AB configuration field

Here the user can specify as many Master ***AirBoxes*** as needed (depending on the project). To each one of them can be assigned a Preferred Slave ***AirBox***.

The , and signs, situated after each one from the Master addresses, are showing the current status of an ***AirBox*** machine (running, paused or stopped).

(!) TIP: If you want an exact defined Slave to back up a particular Master ***AirBox***, just drag the relevant slave from the middle *Slave AB* field to the *Preferred Slaves* string, situated at the *Master AB* configuration field.

Right-clicking within the Master AB configuration field opens a contextual menu providing the following settings:

- *Add Master AB…*- Click it for adding a new ***AirBox*** Master to the list.
- *Assign Alarm event*- These assign an alarm event to a particular ***AirBox***. Currently, only the *TitleBox Alarm Plug-in* is supported. This plug-in

works when ***TitleBox*** is in Net Control mode. It monitors a predefined ***TitleBox*** application. In case the connection with ***TitleBox*** is lost, the alarm is triggered and ***MBM*** initiates a switch from the Master ***AirBox*** to the Slave. This is intended for a safety's sake, in case the Master application, to which this alarm is assigned, failures.

For adjusting the TitleBox Alarm Plug-in, you have to select a Master from the Master AB field. Then, right-click it ➔ Assign Alarm Event➔TitleBox Alarm Plug-in. A dialog window will appear for you to specify the address of the ***TitleBox*** machine or its name in the network, Port and ***TitleBox*** channel.

- *Edit* is a setting which provides possibilities for editing the alarm events, which are assigned to a defined Master.
- *Delete* – use it if you want to delete an alarm event, assigned to a master ***AirBox***.

V.2.2.2. The Slave AB configuration field

Here are situated all AirBoxes, added as Slaves.

V.2.2.3. The Online AB configuration field

You can specify whether an ***AirBox*** is Master or Slave by selecting some of the *Online AirBoxes*, situated at the third configuration field. Simply right-click within this field to *Add as a Master* or *Add as a Slave* the relevant ***AirBox***. The icon, seen in the third configuration window, means that the particular ***AirBox*** is available. The icon means a non-responding ***AirBox***.

V.2.3. The active switches monitoring

The active switches monitoring window is activated when a Master ***AirBox*** is replaced with a Slave. It monitors which of the Masters has been replaced, as well as the address of the Slave ***AirBox***. . The last digit in the address field represents the ***AirBox*** instance number. In case of a ***Master's*** replacement, the colour of the *Active switches monitoring window* becomes red. Pressing the button will allow you to turn back to the initial state of the Master ***AirBox*** when it is available. This does not initiate and actual switch, because switching back to Master is always manual. After pressing this button, ***Multi-Backup Manage***r will "watch" the ***AirBox*** Masters state again.

NOTE: For now, switching back to the main playback is manual and needs human intervention!

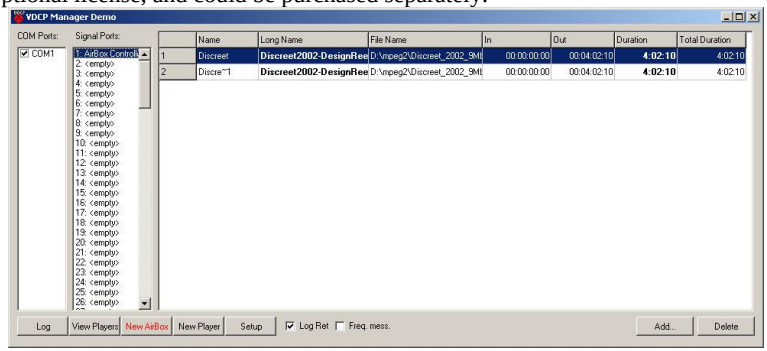
NOTE: ***Multi-Backup Manager*** is still BETA!

V.2.4. Log view

Multi-Backup Manager generates a log *txt file, situated in its installation directory. It logs all the necessary events as alarms, switching, machines connections, choosing preferred Slaves, etc.

VI. VDCP Manager

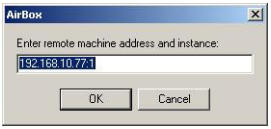
AirBox can now be controlled through peripheral VDCP controllers with the help of the ***VDCP Manager***. The ***VDCP Manager*** is available as an optional license, and could be purchased separately.



The number of the VDCP controllers that can be connected to the ***VDCP Manager*** depends on the available *COM* ports. Currently one VDCP unit could maintain up to 127 players (***AirBox***) and later will also maintain up to 127 recorders (***CaptureBox***).

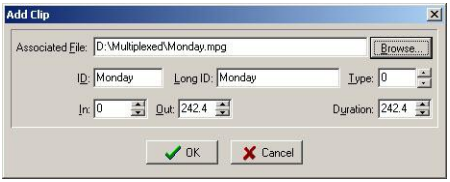
The ***VDCP Manager*** interface is quite simple, divided into three fields and a button bar below them.

In the first field are listed the available *COM* ports, each with a check box in front. If the COM port is ☑checked, tracking of the relevant connection for availability of such a controller is activated.



The next field contains list of the ***AirBox*** modules, connected to the ***VDCP Manager*** (up to 127 as it was already mentioned). This network connection is performed through ***AirBox*** network API. Pushing the *New AirBox* button will invoke an input dialog box to specify the Machine Address on the network (the IP address), and the instance number (the number of the ***AirBox***). The instance number is written after the colon.

The widest field represents a list of the available/visible clips in the network.



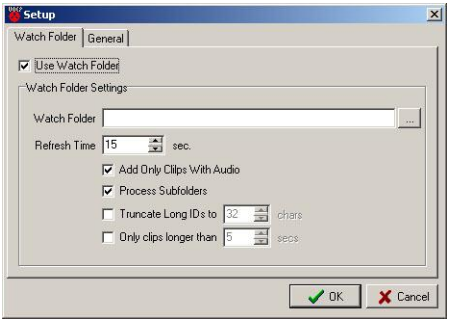
You can add new clips by pushing the *Add* button (to include existing clips) or you can activate the Watch Folder

function (to add new-coming clips automatically) in the *Set up* dialog box. If you push the *Add* button, a dialog box will open to lead you through the procedure.

Fill in the *Associated File* field (the file name of the clip); the *ID* and *Long ID* fields are filled-in automatically; and so are the *In*, *Out* and *Duration* fields (values in seconds). You can trim the clip from here using the arrows next to the relevant field.

The *Type* of a file determines which players can play it. *Type* [0] means that all players can play it.

Pushing the *Set Up* button opens a setup dialog box.



The *Watch Folder* page is used for setting the automated populating of clip list.

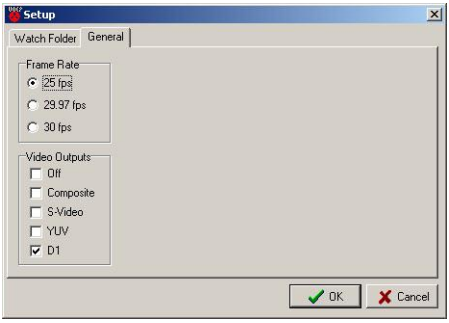
Check the ☑ *Use Watch Folder* box to activate this function.

☑ *Process Subfolders* is checked if a watched folder contains any subfolders that you would like to be watched as well.

☑*Truncate Long IDs to […] chars*. The VDCP controllers usually support clip names of 8(standard/short IDs) or 32(long IDs) chars. This function is used for controllers that support limited length of long IDs, so you have to truncate them.

Some controllers get "confused" by short-duration clips, therefore you might need the ☑*Only clips longer than […] sec.* function.

The *General* page contains some additional settings:



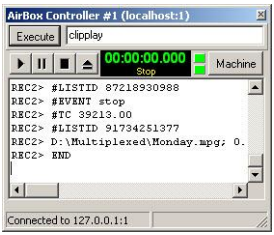
The set *Frame Rate* will determine the TC frame rate.

The *Video Outputs* field contains a list of all possible outputs. Check the available ones.

The Log button will show the log of the VDCP communication.

☑ *Log Ret* will log the responses to the VDCP commands

☑ *Freq. mess*. If not checked will filter out some frequent VDCP messages.



The *View Players* button will show all active ***AirBox*** *controller* windows. Each ***AirBox*** controller window caption contains the ***AirBox*** number (1 to 127). In it, you can see the communication log of the relevant ***AirBox***.

The Execute button, the text field next to it and the playback control buttons are used for testing the connection with ***AirBox***.

Pressing the *Machine* button will bring up the input dialog box for the network address. The green lights in front of it mean that the connection with ***AirBox*** is established. If the lights are red, the ***AirBox*** is not accessible, a sign [Disconnected] will appear in the status bar.

The *New Player* button activates a kind of virtual player, used for testing the execution of commands.

(!) TIP: Check Appendix 3 at the end of this user's manual for complete VDCP Commands Implementation Chart.

CAPTUREBOX

I. GETTING STARTED

I.1. Quick Start

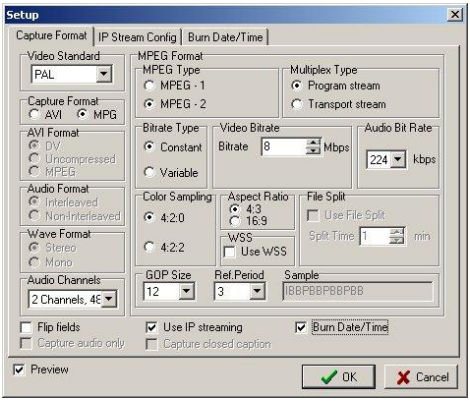
1. Connect the video source signal to CaptureBox video input;
2. Launch CaptureBox;
3. Select the media folder you wish to capture to;
4. Fill in the *Tape ID* or *Channel* field;
5. Type the file name you want to capture the content to;
6. Click the ***Manual Capture*** button;
7. When required, stop the capturing by pressing the Abort button.

Congratulations! You have just captured your first CaptureBox clip!

I.2. Capture Settings

I.2.1. DeckLink

You can make the preferred capture settings for your DeckLink platform in this dialog.



In the first field you can choose the *Video Standard* – here are listed the most popular PAL, NTSC and HD standards. Then set the file format – it can be MPEG or AVI.

- For AVI capturing you can define the AVI format (DV or uncompressed) and the audio format (interleaved or non-interleaved).

- ***CaptureBox*** supports encoding to both MPEG-1 and MPEG-2 files. So, when you capture in MPEG format – point whether it should be MPEG-1 or MPEG-2.

- For MPEG-1 you can set the bitrate value.
- For MPEG-2 you set the bitrate type (constant or variable), the audio and video bitrate values, the color sampling and the aspect ratio. Determine the file structure by setting the GOP size and the reference period. If you want to divide your file into parts, check *Use File Split* and set the *Split time* (in minutes).

If you have purchased the multi audio option, use the *Audio Channels* drop-down list below to specify the number of audio channels to be captured.

If you select *Flip fields*, the fields of the captured material will be flipped.

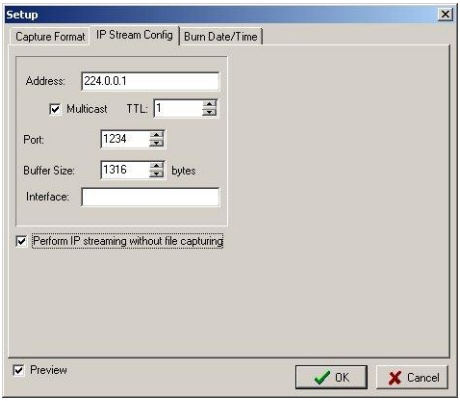
☑*Use WSS* – use this box to capture WSS information.
NOTE: This check is not available when working with AVI DV or AVI Uncompressed type of video.

☑*Use IP streaming* – This box is active when capturing to MPEG-2 format. A second tab appears in the settings dialog so you can setup the output stream. Please check the next page for details.
NOTE: Streaming is optional functionality, not included in the standard CaptureBox.

☑*Burn Date/Time* – check this box to burn the current system date and time in the produced files. Please check the next page for details.

When capturing non-interleaved audio, the ☑*Capture audio only* check box becomes active. Use it to capture only *.wav* files (no *.avi* files will be produced).

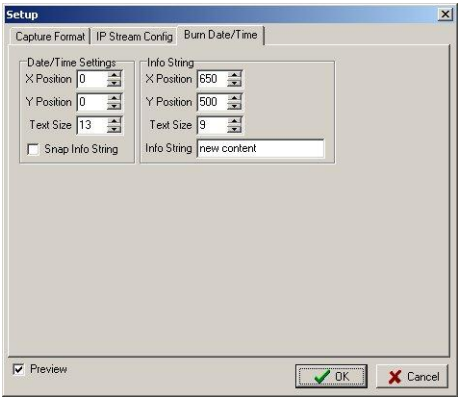
☑*Capture closed caption* – this box is active when capturing in NTSC standard. It allows capturing the VBI information stored on lines 18, 19, and 20. Please note that you have to enable them in the DeckLink driver: **Control Panel ➔ DeckLink → *VANC and 3:2 Pulldown*** tab. If you check ☑*Preview*, the currently captured scenes will be shown in the preview window on your desktop.



CaptureBox can stream the captured material to the network (multicast or to a specified IP address) in MPEG2 Program Stream.

When in MPG capturing mode, a check box becomes active in the ***Capture Format*** tab – ☑*Use IP streaming*. When you check it, a second tab appears in the DeckLink Setup dialog – ***IP Stream Config***. In it, you can configure the streaming address, multicast/unicast, etc. In case you have more than one network connection, specify the one to be used for streaming. If none is selected, ***CaptureBox*** will stream through all available network connections.

This tab is active when you check ☑*Burn Date/Time* in the ***Capture Format*** tab.



There are two fields in it:

Date/Time Settings allows adjusting the position of the burnt date and time and its font size.

The *X Position* represents the up most pixel of the text.

Y Position represents the far left pixel of the text.

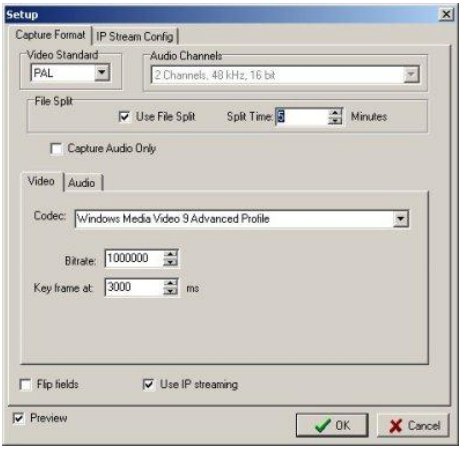
If you want to add some comments in the captured video, type them in the *Info String*. You can adjust the text position and size using the spin-boxes above.

If you want to stick the note to the time and date info, check ☑*Snap*

Info String.

NOTE: If the date/time of info string text is likely to fall off the screen, it will be adjusted automatically to the nearest possible position, so no characters will be left out.

I.2.2. DeckLink WMV



This driver is used for capturing and streaming of Windows Media Video on DeckLink I/O hardware modules. It encodes the input signal (SDI, composite or component) to Windows Media Video.

In the setup dialog to the right, there are some settings, concerning the resulting captured files:

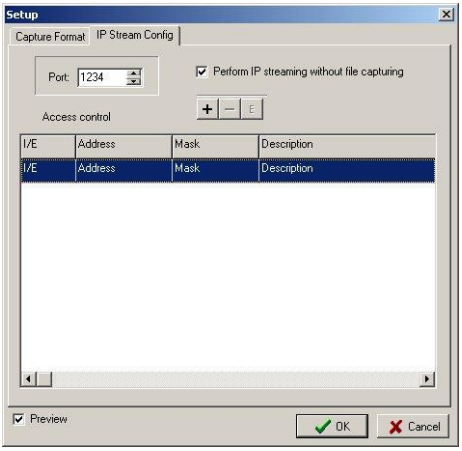
The *Video Standard* drop-down menu is used for choosing the video standard (PAL or NTSC).

If the multi-channel audio capturing option is enabled on the dongle, the user can specify how many audio channels to be captured in the *Audio channels* drop-down list.

The ☑*Use File Split* checkbox allows splitting the video at predefined time intervals.

To capture the audio only, when needed, you will have to activate the ☑*Capture audio only* check.

If the input video signal is with flipped fields, you can change their order using the ☑*Flip fields* checkbox.



When the ☑*Use IP streaming* checkbox is ticked, the ***IP Stream Config*** tab will appear in the setup dialog. In it, you can configure the streaming address, Port, etc. Performing an IP streaming without file capturing is possible, by checking the relevant box. To enable previewing, use the☑*Preview* check.

I.2.3. DeckLink H.264

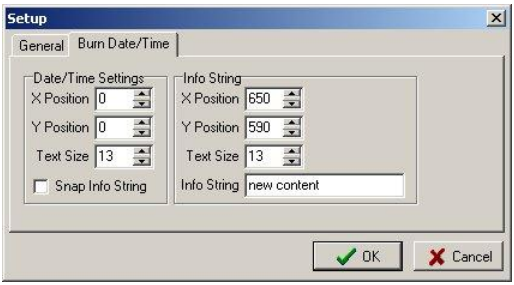
This plug-in provides possibilities for capturing of MPEG 4 AVC/H.264 video on DeckLink cards. The setup dialog contains the following settings:

Video Standard - the user can choose between PAL and NTSC.

☑*Flip Fields* – if the input video has flipped fields and it is necessary to change the fields order, this check has to be used.

☑*Preview* – to enable previewing, use this check

☑*Burn Date/Time* – check this box to burn the current system date and time in the produced files. When this check is ticked, the *Burn Date/Time* tab will appear in the setup dialog. This tab allows adjusting the position of the burnt date and time and its font size.



The *X Position* represents the upmost pixel of the text.

Y Position represents the far left-hand-side pixel of the text.

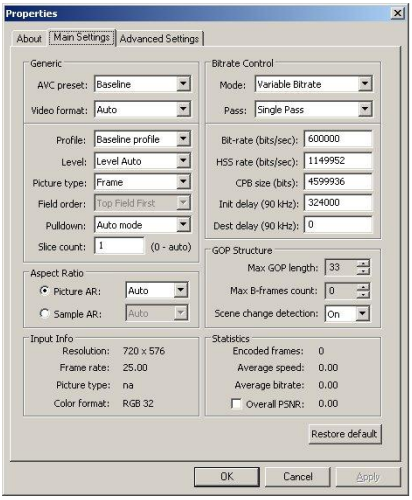
If you want to add some comments in the captured video, type them in the *Info String*. You can adjust the text position and size using the spin-boxes above.

If you want to stick the note to the time and date info, check ☑*Snap Info String*.

Back in the General tab, the ☑*Use file splitting* check is useful for splitting the video to be captured at predefined time intervals.

Pressing the ***Video Encoder Settings*** button will open the MainConcept AG AVC/H.264 encoder setup window. It is containing three tabs.

The ***About*** tab contains information about the codec version. In the ***Main settings*** tab the user can specify an *AVC Preset*. Each Preset is a predefined group of encoding settings, designed to facilitate the user. In the *Video format* drop-down list, specify the format of the video. When it is set to *Auto*, the video standard will be automatically defined from the input video. The *Profile* and *Level* drop-down lists are referring to the Profile and Level of the encoder. Using them, the user defines the possible input signals and output settings.



Below, you can choose among different profiles and levels, and specify the picture types: frame, field or MBAFF*.

Further down, you can specify the fields order (bottom or top first), and the *Pull-down* mode. Pull-down is applied for conversion when the source bitrate and the output bitrate are different.

Slice count defined the number of slices per picture.

In the *Aspect Ratio* field, there are two options:

⊙ *Picture AR* – to fix the aspect ratio of the whole picture;

⊙ *Sample AR* – to fix the aspect ratio of pixels in the output picture.

In the *Bitrate Control* field, there are two drop-down lists and several strings.

Mode – specifies the rate control mode (Constant, Variable or Constant Quantizer).

The *Pass* drop-down list is used to specify the multi-pass encoding mode:

Simple – encoding without gathering statistics

Analyze – encoding and gathering statistics for next pass

Encode – encoding using the gathered statistics and updating it.

Bit-rate (bits/sec) – specifies the average bit-rate (bits/sec) of the encoded video elementary stream.

HSS rate (bits/sec) – specifies the hypothetical stream scheduler rate (bits/sec) of the encoded video elementary stream.

CPB size (bits) – specifies the size of coded picture buffer in bits.

Init Delay (90 kHz) - specifies the initial CPB removal delay in 90 kHz clock units.

Dest Delay (90 kHz) - specifies the destination CPB removal delay in 90 kHz clock units.

In the *GOP Structure* field, you can set:

* Macro Block-Adaptive Frame/Field coding.

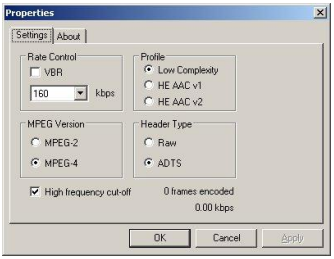
Max GOP length – the maximum length of any Group Of Pictures. Larger numbers frequently provide better compression. Smaller numbers provide better error recovery and better access to the frames for editing.

Max B-frames count – the maximum number of *B frames* in a GOP. Some decoding situations such as video conferencing may require “no B-frames” for providing low communication delay.

Scene change detection – enables/disables the scene change detection.

In the lower right corner of the *Statistics* filed is situated the ☑ *Overall PSNR* check box. It enables/disables measuring the Peak Signal to Noise Ratio. This requires some CPU resources, so check it only if you need this statistics.

The ***Advanced Settings*** tab refers to the AVC H.264 standard specifications. It contains more sophisticated options that should not be changed unless advised by our support team!



Pressing the ***Audio Encoder Setting*** button will open the MainConcept's AAC Encoder© properties dialog.

The *Bitrate Control* specifies the average output audio bitrate; the *Profile* sets the object type; and the *Header type* sets the output bit stream format (raw or with ADTS headers).

Check ☑ *High frequency cut-off* to reduce the encoded data.

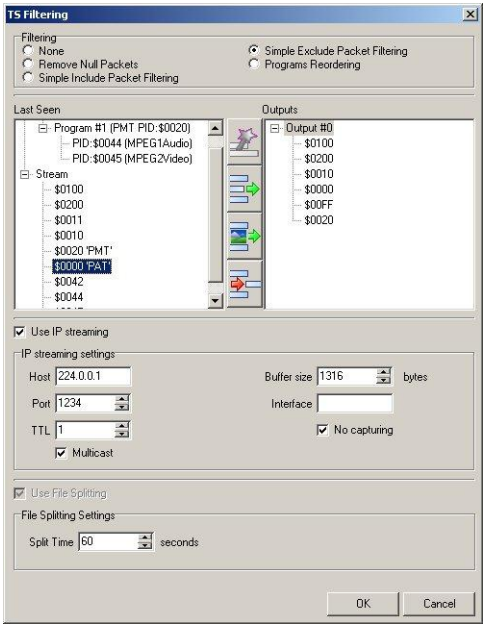
Pressing the ***Multiplexer Settings*** button will open the MainConcept Multiplexer© properties dialog. You can view the parameters of the output MPEG-2 TS stream in it.

I.2.4. Delta ASI

Now you can input ASI streams (MPEG2 TS or PS) in ***CaptureBox***. ***CaptureBox*** will capture the stream to an MPEG2 file without de-multiplexing it, i.e. if you have a TS input, the resulting file will also be MPEG2 Transport Stream. On pressing the ***Setup*** button under the batch capturing grid, the following dialog will open for you to adjust the ASI capture plug-in.

In the middle of this dialog, you can find a list of all Programs and Streams that were present in the incoming stream at the time of pressing the ***SetUp*** button.

To the right of it, there are several buttons that are activated depending on the selected *Filtering* method. You can choose it in the area above:



None – there will be no filtering. CaptureBox will capture the incoming stream as is.

Remove Null Packets – as some interfaces need constant bitrates to operate properly, Null packets are included to stuff-up the gap between the real bit rate and the required bit rate. These packets do not carry any information and can be removed in order to reduce the bit rate of the captured files, thus saving storage space.

Simple Include Packet Filtering – Check this radio-button and select which streams to be included in the Output:

Use the ***Add*** button to add the currently selected line in the left to the Outputs list in the right.

Use the ***Add Custom*** button to type manually the PID you would like to add to the Outputs list.

If you want to remove an already added stream, select it in the Outputs list and press the ***Delete*** button.

Simple Exclude Packet Filtering – Check it and select the PIDs you do not want to include in the Output file/stream. Use the ***Add/Add Custom*** button to create a list of PIDs to be excluded from the output.

Programs Reordering – in this mode, you can create several outputs by pressing the ***Create Output*** button. Then, you can assign the programs to go to each output: Press the Create output button as many times as necessary. Then, select the output in the list to the right and click on the program line to the left. Press ***Add*** to assign it to the relevant output. Then, check ☑*Use IP streaming* if you want to send the selected output to the network; or leave it unchecked if you only want to capture the stream to an MPEG2 Transport Stream file. When there is more than one output, the endings of the resulting files' names will indicate the number of the output (zero-based).

Check ☑*Use IP streaming* to send the incoming signal to the network. In the IP streaming settings area, specify the *Host* IP address and the *Port* to which you would like to send the stream. Check *Multicast* if you need to send the stream to numerous machines.

In the *TTL* spin-box, specify the number of switchers the stream can pass (Time To Live).

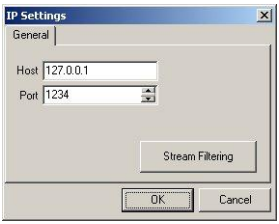
To the right, modify the buffer size depending on your needs. Usually we recommend setting this size to 1316 (7 UPD packets of 188 bytes).

If you have more than one LAN cards in the machine, specify which one should be used for the streaming. Otherwise, the stream will be output through all network connections.

Check ☑*No capturing* if you do not want to save the incoming stream to a file. If you leave it unchecked, ***CaptureBox*** will write the stream to an MPEG2 TS file.

☑*Use File splitting* is active when ***CaptureBox*** writes the captured stream to a file (i.e. ☐*No capturing* is not checked). This functionality allows you produce chunks of files based on predefined periods. You can adjust the period (in seconds) in the *Split Time* box below.

I.2.5. IP Capture



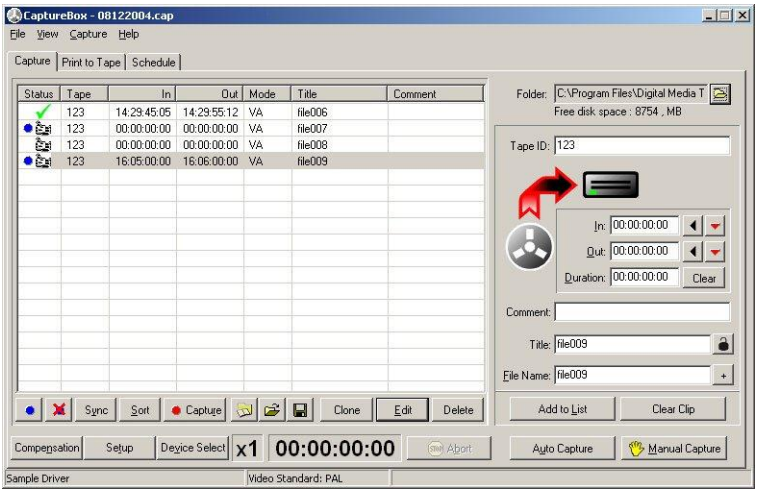
This plug-in is designed for capturing of MPEG2 Transport Streams coming from the network. The resulting file format is MPEG2 TS (no re-encoding takes place).

In the setup dialog, enter the IP address of the sending machine and the port at which it streams. If the incoming stream is MPEG2 Transport steam, push the ***Stream Filtering*** button to select which streams should be left in the captured file.

In the middle of the Filtering dialog, you can find a list of all Programs and Streams that were present in the incoming stream at the time of pressing the ***SetUp*** button.

As IP stream filtering options are identical to the ASI stream filtering, please check the ASI section above for further details.

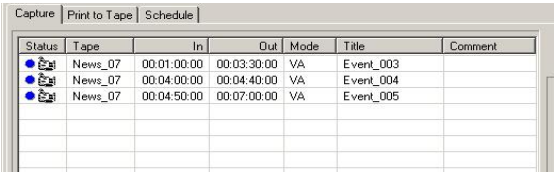
II. USER INTERFACE



II.1. Capture Mode

When the ***Capture Page*** is active, the module is in "record" mode. In this mode, you can choose a batch of scenes from tapes, collect them in the batch capture list or record every single scene manually from a *VTR*.

II.1.1. Batch Grid


Capture Print to Tape Schedule
Status Tape In Out Mode Title Comment
News_07 00:01:00:00 00:03:30:00 VA Event_003
News_07 00:04:00:00 00:04:40:00 VA Event_004
News_07 00:04:50:00 00:07:00:00 VA Event_005

The automated batch capture grid occupies a large part of the window. Many people refer to this function as "batch capturing". You can define a list of scenes with their ***start*** and ***end*** timecode values. Then activate batch capturing. ***CaptureBox*** captures the desired scenes automatically from the corresponding tapes. The operator should only change the tapes when prompted.

Grid Columns:

- **Status** column shows the current state of each clip, as follows:
  - If the clip has been successfully captured, a green mark ✓ appears.
  - If the clip is captured, but there is no option for *VTR* control, a yellow hand appears, and the timecode values in the **In** and **Out** columns are zeroes.

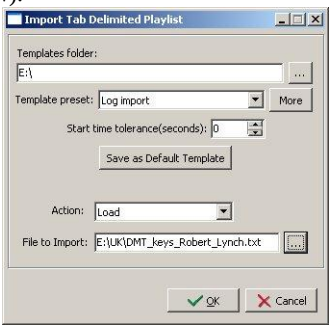
- If not the whole clip has been captured, or there has been a problem during the capturing process, a red mark ✘ appears.
- If the clip is not captured yet, a "camera" appears.
- If the clip is included in the next **capture** session list, a blue dot ● appears. The dot can be removed by clicking that field. This will exclude the clip from the next capturing session.
- If the clip is not included in the next **capture** session, the blue dot is missing. The dot can be added by clicking that field. Thus, you will include the clip in the next capturing session.

- **Tape** column shows the ID of the tape, from which the particular clip will be captured.
- The **In** column shows the initial timecode, when clip capturing will start.
- The **Out** column shows the timecode, when clip capturing will stop. If you click on the grey bar named **Out**, it will be renamed to **Duration** and the column will show the clips' durations.
- **Mode** column shows what will be captured for the particular clip – video (V), audio (A) or both (VA). Currently only VA is supported.
- The **Clip Name** column shows the clip names. If you click the grey bar named **Clip Name**, it will change to **File Name** and the column will display the destination full path where the clip will be stored – hard disk name, folder and file.
- **Comments** column shows the comments (if any) for each clip. You can enter your comments in the relevant string of the clip data field to the right.

Grid buttons:

- The ***Blue dot*** button includes the selected clip in the next capture session.
- The ***Red X*** button excludes the selected clip from the next capture session.
- The ***Sync*** button synchronizes the list. All clips with "not captured" status are included in the next capture session.
- The ***Sort*** button sorts the list by Tape ID and then by Start Timecode. Thus, the batch capture process is simplified and optimized.
- The ***Capture*** button starts an automated capture session. During this session, all clips, marked with a blue dot will be captured to the hard drive.
- ***Delimited List Import*** button enables loading all types of tab-delimited text files into the batch grid. You will have to create templates to "tell" ***CaptureBox*** what is the structure of your tab-delimited file, i.e. what information does each column contain.

Pressing the ***Delimited List Import*** button will open a dialog for you to specify the template to use when loading your file:



The *Template preset* drop-down list contains all the templates stored in the ***Template Folder*** (see the **Template Builder** description below).

Select the *Action* you would like to execute from the drop-down list. You can either Insert, Append or Load the file. The latter action will delete all previously loaded entries in the batch grid.

Finally, browse for the file you would like to import using the selected template and click ***OK***.

NOTE: The ***OK*** button will not be active until you fill in all the strings in this dialog.

At opening this dialog for the first time, you will have to **create a template** first. First, select the ***Template Folder*** – all the templates you create will be stored there until you change it.

Push the ***More*** button to open the **Template Builder**:

Type the template name in the *Template:* string. If the selected templates folder already contains some template files, they will be listed in the drop-down list.

Push the ***Sample File*** button to open an example file for your template.

If there are some rows in the beginning of the file that you would like to skip, enter their number in the *Number of lines to skip* string. The skipped lines will be colored in red.

If there is a symbol in the beginning of each row in the file that you would like to skip, select it from the *Comment:* drop-down list. Then, specify the Delimiter from the drop-down list.

Now that you have set the basic rules, you will have to "explain" the **Template Builder** what information each column contains: Go to a column's header and click in it. Then select one metadata category from the drop-down list to assign it to the relevant column. Once assigned, this category will be checked in the *METADATA* list to the left. You can un-assign a category either through un-checking it in the METADATA list or by selecting [Clear] from the drop-down list.

Select [Bulk] if you wish to skip a column.

When the preset is ready, press the ***Save*** button to store it in the Templates folder.

Press the ***Validate*** button to check if the current template matches a specific file.

To load the currently selected template in the *Template preset* string, press the ***Pick*** button.

If you already have some templates and you select one of them from the drop-down list, push the ***Load*** button to load it (its settings will be displayed in the grid).

Back in the **Import Tab Delimited Playlist** dialog, you can set a default template by pushing the ***Save As Default Template*** button.

NOTE: Do not use the *Start time tolerance* spin-box – it is related to ***AirBox*** only.

- The ***Folder*** button allows loading a list, preliminary prepared in ***CaptureBox*** with clips ready for capturing (**.cap* file). The name of the current list is written in the title bar of the module, right after ***CaptureBox***. If the list has been changed and not saved, an asterisk (*) appears after its name.
- The ***Diskette*** button saves the current capture list to a file, which can be used later.
- The ***Clone*** button "clones" the selected clip. Its data (title, file name, in/out point, duration) are copied in the right-hand panel for use in the next entry of the batch capture list. This functionality could save time for entering almost the same data for each row. Just change the different points and there it is!
- The ***Edit*** button allows changes in the description of a clip. The clip data are loaded into the Data Fields and you can edit them. During editing, the Edit button transforms to ***Cancel*** and the ***Add to List*** button transforms to ***Apply***. By pressing the ***Apply*** button, your changes are applied in the list.
  You can also edit a clip by double-clicking it.
- The ***Delete*** button removes the selected clip from the list.
- The ***Compensation*** button – invokes a dialog box for defining the capturing delay compensation (in frames), when you capture from video recorder. On some stations you must manually compensate for some delays when capturing to different formats (DV, MPEG2 AVI, MPG).
- The ***Setup*** button – shows a window for setting up Inputs/Outputs of device, capturing format and specific settings.

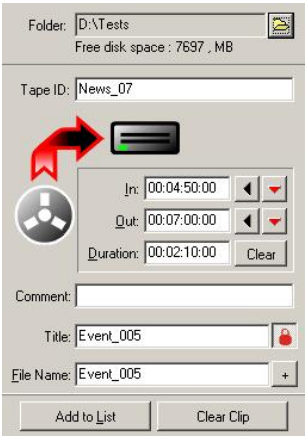
NOTE: The setup dialog box may vary, according to the platform type. See the Capture Settings section above for description of some platforms' setting dialog boxes.

- The ***Device select*** button – allows choosing the capture device or software simulation of capturing (**Sample Driver**).
- The ***Abort*** button – it activates during the capture preparing only. Press it to stop the capture.

The *Speed* field x1 shows the speed of capturing.

- The *Timecode* field – shows the timecode during capturing.

II.1.2. Clip Data fields



This field is designated for clip description. It is not possible to include the clip in the batch capture list if you have not specified the clip location on the hard drive, the tape ID, the initial and the final timecode, as well as the clip name.

- *Folder* – this field describes the folder in which files will be captured. Pressing the ***browse*** button next to it opens a browse dialog box where you can specify a hard disk and a folder for storing the captured clip.

Under the field you can see information about the free disk space at the selected disk.

- *Tape ID* – In this field you must type the ID of the source tape from which will be captured the footage. This is very important if you work with more than one tape or the tape timecode is not continuous. Later, during the batch capture session, you will be asked for tapes by their IDs.
- *In* and *Out* fields specify the initial and the final timecode respectively. If you choose to fill-in the information manually, you could use either of the following separators: **colon (:), semi-colon (;), dot (.)** or **comma (,)**. Of course, you do not need to enter the leading zeros in any field. For example, if you enter 1.2.3 this will be translated to 00:01:02:03.

If you don't enter any disjunctive symbols in the timecode, this will be interpreted as a number of frames. For example, if you enter "100", this will be interpreted as 4 seconds (00:00:04:00).

- *Duration* – Its value is automatically calculated by subtracting *In* from *Out* values. It is possible to type a value only in the *In* field and define *Duration*. The value of *Out* field will be calculated automatically.

To the right of *In, Out* and *Duration* fields are situated buttons that function as follows:

- Pressing the ***black arrow***, pointing left, will insert the current timecode from the *VTR* in the corresponding field
- Pressing the ***red arrow***, pointing down, will rewind the tape exactly to the timecode, written in the corresponding field
- Pressing the ***Clear*** button clears all values in the *In, Out* and *Duration* fields.

- In the *Comment* field you could enter a description or a comment, concerning the particular scene sequence. Your comment will be displayed in the relevant Grid column.
- *Title* represents the name of the clip. If left empty, the field will be automatically filled-in with the corresponding *File name*.
- ***Lock*** button is used for locking the *Title* to the *File name*, i.e. any changes in the clip name will affect the file name and vice versa.
- *File Name* stands for the name under which the captured clip will be saved. If left empty, the field will be automatically filled-in with the *Title*.

For your convenience, the filename is automatically increased by pressing the ***Plus*** button or ***Add to List*** button. If the last clip name was [Capture00***1***], the next filename would be [Capture00***2***], and so on. If the filename does not end with a number, but with a letter, the letter will change in alphabetical order, i.e. if the last clip name was [Sofi***a***], the new filename will be [Sofi***b***], then [Sofi***c***] and so on. Of course, there is an option to enter a new name manually.

- ***Plus*** button increases the *File name*.
- ***Add to List*** button - transfers the clip data into the batch capture list (on the left) and most of the clip fields are cleared except *Tape ID* and *Folder.* The *File name* increases.
- ***Clear Clip*** button - clears all clip data.

II.1.3.Capturing

There are three methods to start capturing:

- ***Manual Capture*** –this mode can be applied only if *Tape ID, File Name* and *Folder* fields are filled-in. If the timecode field *In* is empty, pressing this button will open a window for manual start of the capturing. If the *In* field contains timecode, ***CaptureBox*** will start counting down for the same amount of time before commencing the capture. Press ***Finish*** button to stop the capture.

- ***Auto Capture*** (automated single capture) – this mode can be started only if the *Tape ID, In, Out, File Name* and *Folder* fields are filled-in. When capturing is finished, the clip data is automatically moved into the batch list and marked as captured. There is no need of re-capturing, except when a blue dot is set in front of it. To stop the capturing manually, press the ***Abort*** button. Clip data will be moved to the batch list, but the clip will be marked as not fully captured.
- The Batch Capture is in fact automated capturing of a series of scenes. Activate it with the ***Capture*** button, which is situated under the clip list. All the clips from the list that are marked with a blue dot will be captured in ascending sequence of the time codes and tape IDs. During this process, no special attendance is necessary– one should only take care of changing the tapes when prompted.

TIP (!) You can adjust the preview window size by right-clicking in the preview window.

IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

II.1.4. Using the Time Delay – Instant Replay option (TDIR)

TDIR functionality is available only for *.mpg files, i.e. for plug-ins, where *.mpg files are supported.

To use the TDIR option, launch ***AirBox*** and right-click over the grid. Choose **Add/Insert Incomplete clip** from the context menu. You can also **Add/Insert Incomplete clip**s from the **Edit** menu.

In the Clip Properties dialog, browse and point the location where the clip will be captured. Type the Filename and copy it (**<Ctrl** + **C>**), you will need it later in ***CaptureBox***. Start the playback.

Next, run ***CaptureBox*** and prepare for capturing - make the necessary settings and fill in the *Clip Data fields*. Use **<Ctrl** + **V>** to paste the filename you copied from ***AirBox***.

There should be at least 5 seconds between the capture start and the start of the incomplete file's playback.

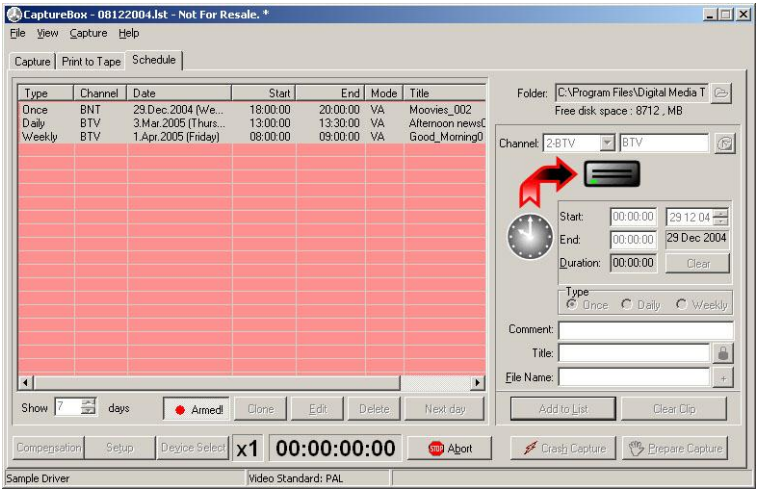
Here is an example of setting this function. In it, a clip that is still being captured will be played back in ***AirBox*** for 20 seconds:

1. Open ***AirBox***
2. In the **Settings** menu ➔ **Settings** dialog, set *Check Missing* every [3] seconds and click ***OK***.
3. Load a playlist; right-click and select **Insert/Incomplete clip**.
4. In the **Clip Properties** dialog, type in the title and the filename.
5. Use **<Ctrl** + **C>** to copy the file name, you will need it later.
6. Browse for the location to which the clip will be captured. Then set the *Duration* to [20] seconds. In the bottom of the Clip Properties dialog, check ☑ *Live (delayed) file* and clip and set duration ().
7. Push Play. The incomplete file is marked Missing as it still does not exist.
8. Open CaptureBox and specify the Folder you will capture to,
9. the clip name and the filename (Use **Ctrl** + **V** to paste from ***AirBox***)
10. Start manual capturing.
11. A few seconds later the incomplete clip will become available, but it will still be marked as missing as it was inserted before it was created.
12. It will be played for 20 seconds as specified in its properties.
13. When ***AirBox*** starts playing the next clip, you can go to ***CaptureBox*** and stop capturing (if needed).

(!) TIP: You could fully automate this process using the ***CaptureBox*** scheduler. Prepare your schedule-capturing list and insert the incomplete (still missing) clips in the ***AirBox*** playlist accordingly. Thus, if you have set the correct timing, ***CaptureBox*** will start capturing and ***AirBox*** will start playing back the relevant clips.

WARNING! You must have SCSI or very fast SATA storage for the TDIR option. Otherwise capturing will most likely fail.

II.2. Schedule



When the **Schedule** page is active, the module is in "schedule" mode. In this mode, you can define a capturing schedule and start capturing later.

The **Schedule** mode interface is similar to the **Capture** mode interface. There are several differences in Clip description and Grid buttons.

II.2.1. Schedule Grid

The grid occupies a large part of the window. In it, you can create a list of scenes that will be captured after activating the scheduling. This feature is used mainly for capturing TV and satellite signals, but of course, you can capture *VTR* signals as well.

Grid Columns:

Type – shows the schedule type: daily, weekly, etc.
Channel – the TV channel which will be captured.
Date – the starting date of each capture item.
Start – shows the initial time, when clip capturing will start.
End – shows the time, when clip capturing will end. If you click on the grey bar named **End**, it will change to **Duration** and the column will display clip durations.
Mode – shows what will be captured for the particular clip – video (V), audio (A) or both (VA).

Clip Name – contains clip names. If you click the grey bar called **Clip Name** it will change to **File Name** and the column will display the destination pull path where the clip will be stored – hard disk name, folder and file.

Comments – shows the comments for each clip.

Grid buttons:

Show days field – here you can define how many days in advance (counting from today) you will see in the schedule list.

Press the ***Arm*** button

after creating the schedule list. This will activate the schedule capturing mode. The capturing will automatically start and stop, according to the "Start time" and "End time" values entered in the list.

Clone "clones" the selected clip. Its data (type, channel, in/out point, duration) is copied for use in the next clip to be included in the schedule list.

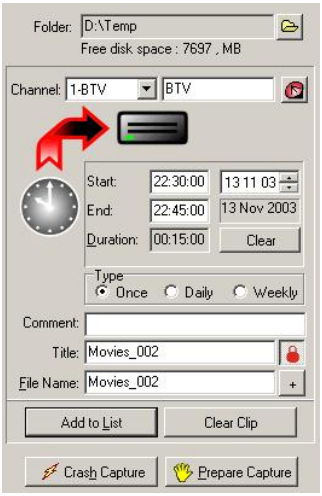
Edit button changes the description of the clip. The clip data are loaded into the Data Fields and you can change them. During editing, the ***Edit*** button transforms to ***Cancel*** and ***Add to List*** button transforms to ***Apply.*** The changes you've made will be applied in the list by pressing the ***Apply*** button.

You can also edit a clip in the list by double-clicking it.

Delete button removes the selected clip from the list.

If you select a grid entry and press the ***Tomorrow*** button a new entry to the list will be created. It will have the same data as that of the selected entry, but its starting day will be on the following day. In short, this button performs a kind of "tomorrow cloning".

II.2.2. Clip Data Fields



The *Folder* field contains information about the file location of the captured clip. Pressing the browse button next to it opens a browse dialog box, where you can specify a hard disk and a folder for storing the clip.

Under the field, you can see information about the free disk space on the selected hard drive.

The *Channel* field contains information about the TV channel which will be captured. You can select it from the list of available channels in the left string or create it in the field next to it.

Pressing the satellite button, opens a dialog box in which you can create the list of up to 16 channels. You can add a new channel by double clicking in an empty line and typing the channel name.

Start time/End time - specify the initial and the final time respectively.

NOTE: These must be in 24-hours' time format! AM/PM is not supported!

Duration – Its value is automatically calculated by subtracting *Start* from *End* values.
Date **–** the capture starting date.
Type **–** defines the frequency of capturing – once, every day, or every week.
Comment - contains a description or a comment, concerning the particular scene sequence.

The *Clip Name* field contains the name of the clip you're going to capture. If you leave the field empty, it will be automatically filled-in with the corresponding file name.

The ***Lock*** button is used for locking the *Clip name* to the *File name*. Any changes you make in either field will automatically occur in the other.

In the *File Name* field you can enter a name for the captured file. If the field is left empty, it will be automatically filled with the *Clip name*.

Add to List button transfers the clip data into the schedule capture list.

Clear Clip button clears all clip data.

Crash Capture button begins capturing of the available channel immediately and without confirmation, irrespective of the entered schedule list.

Prepare Capture – opens a dialog box asking for confirmation to begin capturing of the available channel instantly, independent of the entered schedule list.

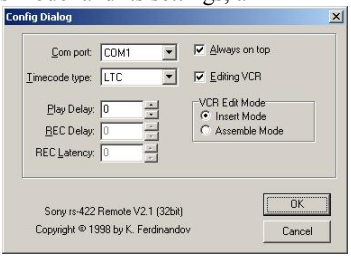
II.2.3. RS-422 Controller

Each *VTR* with *RS-422* ***SONY*** protocol can be used in ***CaptureBox***. Switching the active window between the main and this one is done by pressing the **<Insert>** key. It is possible to attach this window to the main one by moving it close to any of its edges. Thus, the *VTR* control panel will move together with the main window. Here is a short description of the *VTR* control panel:

- The *VTR* brand is displayed in the window's caption. If there is no connection, the text [Not Connected] will appear.
- Display Indicators:

- TCR has three possible states – TCR (normally read timecode), T*R (corrected timecode), TCG (generated timecode, red).
- RecInh a record-protected tape is inserted in the *VTR*.
- Local indicates that the *VTR* is in local control mode and the remote control is not possible.
- Tape indicates that there is a tape in the *VTR*.
- EOT (End-Of-Tape) alarms that the tape is about to end or that the tape end has actually been reached.
- Indicator >> or << - shows the tape roll direction.
- Preroll indicator informs that the *VTR* is executing a preroll command.
- Servo indicator shows that playback is running stable.
- CueUp indicator – shows that the timecode positioning command has been successfully completed.

- *Tape/AutoEE* and *Full EE* – depending on *VTR*'s model and its settings, a combination of these keys opens the **E-E** circuitry.
- ***Config*** button – opens a configuration dialog box, where you can define:
  - *Com port* – the port to which the recorder is connected.
  - *Timecode type* – the type of the timecode: LTC, VITC, etc.
  - *Play Delay* – the delay (in frames) of the video recorder start towards the capturing start. This setting refers to the **Capture mode**.
  - *REC Delay* – the delay (in frames) of the clip start towards the video recording start. This setting refers to the **Print-to-tape mode**.
  - *REC Latency* – the frame offset of the records beginning toward the clips *IN* point. This setting refers to the **Print-to-tape mode.**



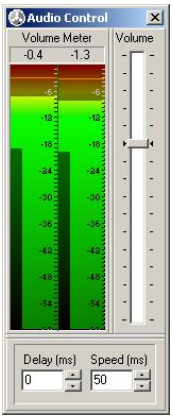
NOTE: The *REC Delay* and *REC Latency* fields are accessible only when the ☑*Editing VCR* box is checked.

- *Always on top* – check it, if you want to see the RS422 window always on top.
- *Editing VCR* – it should be checked, if you use an editing video recorder. If the box is checked, you can set the *REC delay* and *REC latency* fields and the *Video recorder edit mode*.
- *Video recorder edit mode* – you can choose between *Insert* and *Assemble*.

- *RecInh* box– allows or forbids the ***REC*** button in order to protect the tape from accidental mistakes.
- The *Shuttle* slider – allows shuttling within the particular *VTR* capabilities. If the *VTR* allows it, you could achieve variable speed by shifting this button left or right.
- The *Jog* slider allows frame-accurate positioning.

IMPORTANT: The PlayBox modules DO NOT support the Deck Control connector supplied on the DeckLink breakout cable!

II.2.4.Audio Control



This is an additional window, which appears nearby the main window, if the capture device supports audio volume control. You can resize it by stretching its edges. Besides, you can attach it to the main CaptureBox window by dragging it close to any of its edges.

The colored field in the window is a *volume & peak meter*. The green band shows the **peak levels** and the black line inside it, shows the actual sound **volume**.

Right mouse clicking on the *Volume Meter* area opens a context menu, in which you can select the direction of the green bands (Vertical, Horizontal or Auto) as well as the scale range (in dB).

The next field - *Volume slider* - is designed to control the actual captured audio volume.

Delay spin box refers to audio delaying in milliseconds. It is used to compensate the delay between what you hear and what you see on the VU meter. It does not affect the audio itself, just the display.

Speed field you can define the sampling speed in milliseconds.

TIP (!) You can show/hide the Volume slider and the Delay/Speed options by clicking in the line which separates them from the Volume Meter. A hint will appear when you slide the mouse pointer over it.

III. MENU BAR

III.1. File Menu

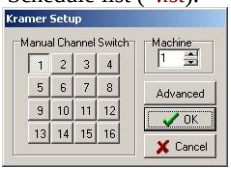
III.1.1. Open

This command opens a previously created Capture list (**.cap*) or Schedule list (**.lst*).

III.1.2. Save

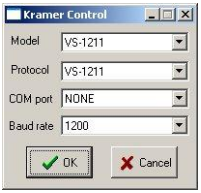
Pres it to save the current Capture list (**.cap*) or Schedule list (**.lst*).

III.1.3. Kramer Config



In **Schedule mode**, you can list up to 16 channels to be captured. Use a Kramer device to switch between them automatically. You can also switch the channels manually via the *Manual Channel Switch*. In the *Machine* field, enter the number of the Kramer switcher used (there could be up to 8 switchers connected to the PC).

If you press the ***Advanced*** button, the following dialog will open for you to specify the interface settings:



Select your Kramer switcher model from the drop-down *Model* list.

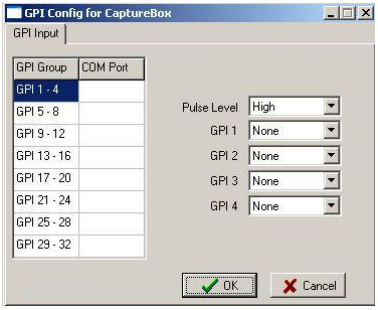
In the *Protocol* field, specify what is the protocol it uses.

Assign the *COM port* for the switcher using the drop-down list of available COM ports.

Set the *Baud rate* according to the Kramer switcher manual.

III.1.4. GPI Config

Capturing can be initiated or stopped from an external *GPI* device. This option is valid for manual capture only. You can connect up to 8 *GPI*-devices. Each of them can send up to 4 *GPI* commands. Each device must be associated with an available *COM* port on the computer.

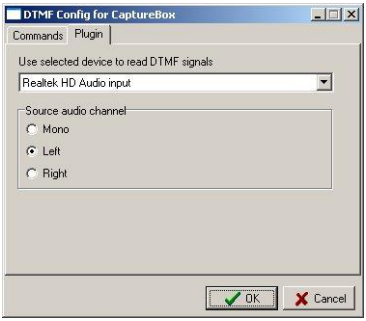


To assign a device, select it from the list to the left and specify to which COM port you will connect it.

In the *Pulse Level* field to the right, you can specify the type of the trigger pulse. Below, set the GPI commands from the relevant drop-down lists.

The pins involved in ***CaptureBox*** GPI are the same as of ***AirBox*** GPI. For more information about the *GPI* interface and pins involved, look up in **Appendix 1** further in this manual.

III.1.5. DTMF Config

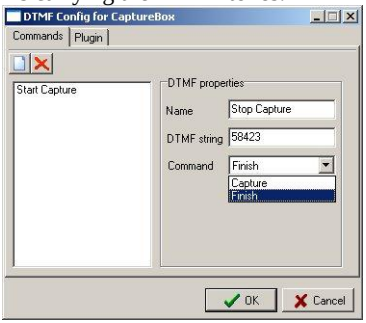


The DTMF reader allows the user to slave ***CaptureBox*** to external DTMF tones that arrive on the sound card of the PC. Currently it works only in Capture mode and the supported commands are Start and Finish.

A two-tab dialog will open on selecting this menu item.

In the ***Plug-in*** tab, specify the device to which is connected the DTMF carrying cable.

In the *Source audio channel* field below, select which channel is carrying the DMTF tones.



In the ***Commands*** tab, create a list of commands to be executed at receiving certain combination of tones.

First enter the command's Name in the string above. Then, specify the sequence of tones that will trigger this command. Finally, select the Command in the drop-down list.

Press the ***Save Preset*** button in the upper left to save the command parameters.

Repeat the procedure to add commands to the list in the right.

To delete a command, select it and press the ***Delete*** button.

Thus, each time this tone sequence appears on the PC sound card, CaptureBox will execute the selected command.

NOTE: The DTMF reader operates only in Capture mode! It will not execute commands while ***CaptureBox*** is running in Schedule mode!

III.1.6. Preferences

The preferences dialog box consists of three pages:

In the ***General*** page you can check the current video standard which depends on the selected plug-in.

The video standard can be changed in the specific set up form of the plug-in (if the relevant plug-in supports this functionality). The current video

standard is also displayed in the bottom of the main CaptureBox window. If you want ***CaptureBox*** to start minimized, check ☑*Start in system tray.*
NEW: TCI files are automatically generated during capturing. They contain information about the tape ID, In and Out time code on the tape, as well as clip duration and notes on the captured files. Most of this information can be imported in ***DataBox*** for automated creation of new records in the database. Please check the TCI Import section in ***DataBox*** ➔ **Options** description.

The time codes in *.tci files can be read by the Clip trimmer for subtitling purposes. If you do not need them, uncheck ☑ *Create TCI files*, which is checked by default.

NEW: ☑ *Stop Capture on VTR ServoLock Lost* – this option is designed to prevent bad video capturing. If for some reason, the VTR reports lost servo lock ***CaptureBox*** will stop capturing and will send a Stop command to the VTR. Thus, you will be able to see the exact position of the bad tape.

In the ***Schedule*** page, you can define Naming Type for the captured files. They are AUTOMATICALLY formed using the original filename entered in the File Name field (while in Schedule mode) plus some kind of index to distinguish them from one another:

⊙ *Increment name (Zero Based)* –the consequent file names will be formed by adding increasing numbers to the original file name. The number in the original file name is always zero; therefore, this naming type is called "Zero-based". In the Zero Based Settings field, you can specify the number of digits to be displayed.

⊙ *Increment name (Calendar Based)* – the names of consequent files will be formed by adding the subsequent calendar number of the capturing day to the original file name (this number may vary from 1 to 365/366 – in leap years).

⊙ *Insert date* – inserts the capturing date in the filename. If you choose this, the Date position (choose position before or after the file name) and Date format fields will become active.

⊙ *Same name (Overwrite)* – Thus, each time CaptureBox starts schedule capturing, it will write the data to the same file.

Below, you can specify the date format and position.
NOTE: File name incrementing is valid only for Schedule mode, for more than one capturing session (daily or weekly repetition).

The ***AutoSave*** page allows enabling automatic storing of capture lists. In it, you can also define the auto-save period in minutes.

III.1.7. Audio Mixer

This command shows the volume mixer of the available audio device.

III.1.8. Exit

Click it to close ***CaptureBox*.**

III.2. View Menu

Use this menu to open some additional windows to the main ***CaptureBox*** window:

III.2.1. Preview Window

You can use it to monitor the video currently present on the encoder input.

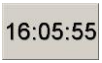
III.2.2. Sony transport

This command shows the *RS422* controller window. The RS422 controller is described profoundly above, in the User Interface section.

III.2.3. Volume Meter

Shows the *volume & peak meter* for the currently captured audio. The Volume & peak Meter is described in more details in the User Interface section above.

III.2.4. Timer



This command displays the system time window.

III.2.5. CPU Monitor

Capturing on some hardware platforms is quite CPU-intense. To prevent poor encoding and frame-dropping, ***CaptureBox*** has an automatic protection which will stop the capture if the CPU usage goes above 85%. This monitor will help you predict such possible situations and set your PC prior to starting the capture.

A drop-down menu activates on right-clicking in this window. In it, you can select which CPU to view (if there is more than one). Besides, you can view all CPUs simultaneously, or an average value of the CPUs' usage.

(!) TIP: You can arrange all windows together by pressing **<Ctrl+F12>**

III.3. Capture Menu

III.3.1. Compensation

Invokes a dialog box for adjusting the capturing delay compensation (in frames). The capturing delay is hardware specific, so the values in this dialog are determined after the method test and mistake.

III.3.2. Setup

Opens a capture setting dialog box. This command duplicates the SetUp button situated under the batch capture grid. The dialog box is different, according to the encoder used. See the Capture Settings section to view the description of some encoders' setting dialogs.

III.3.3. Device select

Opens a dialog box for choosing the capture device.

III.3.4. Capture

It is active only when you work in Capture mode (the Capture tab is selected). It provides three options that duplicate the relevant buttons under the clip data fields:

- **Batch Capture** starts the batch capturing (following a predefined list)
- **Auto Capture** starts auto capturing – the program will control the VTR
- **Manual Capture** starts recording the currently available video source. A dialog box will appear prompting for your confirmation.

III.3.5. Schedule

It is active, only when you are working in ***Schedule mode***.

- **Arm** – activates the schedule.
- **Prepare** – activates manual capturing from the currently available video source. A dialog box will appear prompting for your confirmation.
- **Crash** – starts capturing immediately from the currently available source, without asking any further confirmation.

I. GETTING STARTED

FinishBox LE (previously known as ***MultiMux***) allows multiplexing elementary video streams (such as **OpenDML MPEG2 AVI** or **m2v** files) with elementary audio streams (**mpa**, **m2a**, uncompressed **wav**) to standard **ISO-13818**-compliant ***MPEG2 Program Stream*** (*.**mpg**) containing ***MPEG Audio layer 1 or 2*** at different ***bitrates***.

NOTE: FinishBox LE supports only 16-bit audio format. 32-bit audio files will not be processed.

I.1. Quick Start

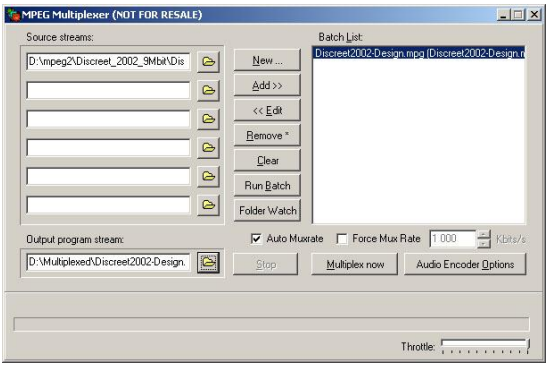
1. Make sure that you have some content available in the input audio/video folders;
2. If you do not have any available, export some from your NLE platform's editing software;
3. Launch FinishBox LE;
4. Click the top button with a folder picture;
5. Select an exported AVI or m2v file and click the Open button;
6. The sound file with the same name will automatically appear in the next empty box;
7. If there is no MPA or WAV file with the same name in your audio folders, you have to select manually the corresponding sound file;
8. Choose a name for the output MPG file (this is not obligatory);
9. Click the Multiplex Now button;

Congratulations! You have just multiplexed your first FinishBox LE file.

II. USER INTERFACE

FinishBox LE always starts up in the last used mode. There are two ***FinishBox LE*** modes – **Standard** and **Folder Watch**.

II.1. Standard mode

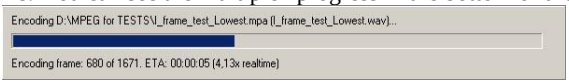


Working with ***FinishBox LE*** is very simple and easy. The Standard interface is used for one-time multiplexing of video and audio streams:

- In the *Source streams* fields, you need to select the video.avi file and the audio.wav file, by using the folder icon or by drag-n-dropping the files. When you select a video file and in the same folder, there is an audio file with the same name, it is loaded in ***FinishBox LE*** automatically. If you use two mono audio files instead of one stereo audio file, you have to keep the following naming convention for the left and the right channels respectively:
<filename>.a1.wav/<filename>.a2.wav, or
<filename>.a3.wav/<filename>.a4.wav, or
<filename>_1.wav/<filename>_2.wav, or
<filename>_3.wav/<filename>_4.wav
In case you use two mono audio files, you have to select only the first one; the second file will be loaded automatically.

FinishBox LE allows creating an *MPEG2* file from up to five streams inside the multiplex.

- In the *Output program stream* field, you have to select the output file name and its location by using the folder icon.
- Press the ***Multiplex Now*** button to start multiplexing the currently specified source streams. You can see the multiplex progress in the bottom of the window:


Encoding D:\MPEG for TESTS\I_frame_test_Lowest.mpa (I_frame_test_Lowest.wav)...
Encoding frame: 680 of 1671. ETA: 00:00:05 (4,13x realtime)

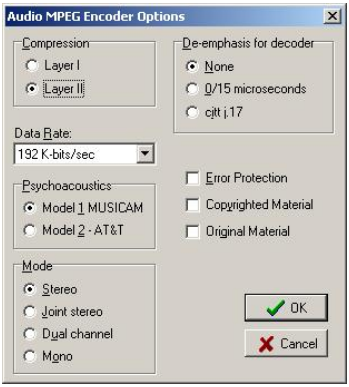
During multiplexing, the ***Multiplex now*** button is replaced with a ***Stop*** button.

- ***New*** is used for clearing of all *Source streams* fields and to add new source files.
- In the *Batch List* area, you can build a list for multiplexing more than one group of streams. Create your batch list by selecting the desired source streams and locations and pressing the ***Add>>*** button or by drag-n-dropping them from the explorer window. The name of the Output Program Stream, followed by the names of source stream files in

brackets, will appear in the Batch list. If there is a batch containing an uncompressed audio stream, the program will encode it first (Audio Encoder Options) and then will multiplex the batch.

- ***Add>>*** is used for adding the files from *Source streams* fields in the *Batch List*.
- ***<<Edit*** is used for moving the selected item from *Batch list* back to *Source streams* fields and edit their order or number.
- ***Remove*** removes the SELECTED item from the *Batch list*.
- ***Clear*** removes ALL items from the *Batch list*.
- ***Run Batch –*** starts multiplexing the items in the *Batch list*. They will be processed one by one, following their order in the list.
- ***Folder Watch –*** pressing this button will open a dialog box to specify the relevant locations for automatic multiplexing. (*See the Folder Watch section further in this manual*).*Auto Muxrate.* It often happens that the declared bitrate of a file differs from the actual one. This function will command the program to detect the actual bitrate and hence – to determine automatically the Muxrate of the multiplexed program stream.
- *Force Mux Rate –* check this box, if you want to define a specific *mux rate* for all multiplexed files and select the *mux rate* value [*Kbits/s*] in the next field. This option comes handy when the declared video *bitrate* is not the same as the actual *bitrate*. This is usually the case with most *VBR* files, ripped from a *DVD*-Video. If not using the *Force Mux Rate* option, ***FinishBox LE*** would produce an unnecessary big *MPG* file, based on the fake high *bitrate*. Using *Force Mux Rate*, the user can specify a *mux rate* close to the actual *bitrate*.

WARNING! Be careful when using this option: it may produce undesirable results if you choose lower *mux rate* than the actual video *bitrate*.



- ***Audio Encoder options.*** If the source stream contains an uncompressed audio file (*.wav), the program will automatically encode it in MPEG1, layer 1 or 2. Use this button to determine the encoding conditions: *Compression; Data rate; Psychoacoustics; Stereo Mode; De-emphasis for decoder.*

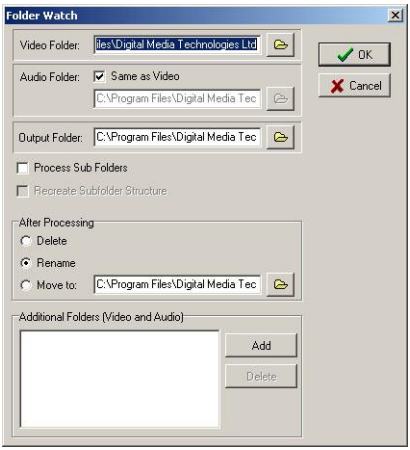
Information flags – you can add some information in the encoded audio stream, by checking the relevant box: *Error protection, Copyrighted material or Original material.*

The Throttle is a kind of process "accelerator". The higher you set it, the less the process prolongs, but the CPU usage will go higher.

II.2. Folder Watch

This function allows running ***FinishBox*** in the background, watching over a particular folder or list of folders for incoming files. When video and audio files arrive at the watched folders, ***FinishBox*** automatically starts multiplexing them into *MPEG* file format and saves the new file to a predefined output folder.

Pressing the ***Folder Watch*** button in the Standard window will open the dialog box you see below:



- *Video Folder* – select the main folder to be watched over for video files. Use the browse button or type the path in the field.
- *Audio Folder* - select the folder to be watched over for audio files.

☑ *Same as Video* – check it when the audio stream is located in the same folder as the video stream.

☑ *Process Sub Folders* – if the selected source folder contains any sub folders, they will also be "watched", i.e. if the subfolders contain any stream files, they will also be processed and sent to the destination folder.

☑ *Recreate Subfolder Structure* will keep the directory structure of the Source location in the Destination location.

- *Output folder* - select an output folder for the multiplexed file(s).
- *After processing* – select how to proceed with the source files after the multiplexing:
- Delete – deletes the source files.

Rename – renames the source files, by adding an extension .done (*for example*, sofia.avi is renamed to sofia.avi.done).

Move in – moves the source files to the folder, specified in the corresponding path field.

- *Additional Folders* – folders to be watched in addition to the source streams.

NOTE: The video and audio streams for additional watch should be in ONE folder.

When you press the OK button, FinishBox LE will minimize and will appear as an icon in the system tray. Right-clicking on it and selecting the **Show** item from the pop-up

menu will invoke the following window:

The tray icon becomes a thermometer when ***FinishBox LE*** is processing.

The *Throttle* slider is used for accelerating/slowing the multiplexing process. Note that multiplexing is quite CPU-intense, so it could slowdown other applications running on the machine: the higher the multiplexing speed, the higher CPU capacity needed.

While in **Folder Watch** mode, you will not be able to see the **Standard** interface window. When starting ***FinishBox LE*** it will appear in the last used mode.

DATABOX

I. GETTING STARTED

DataBox is an SQL-based database for media & content management. Content is classified using many indices such as type, category, genres, keywords, credits, media, etc. The Other ***PlayBox*** modules (***AirBox*** and ***ListBox***) obtain information about the visual content from ***DataBox***.

NOTE: The following chapter contains description of the full ***DataBox*** version. Please note that some of these functionalities are not available in ***DataBox LE*** and in ***DataBox Reader***.

In ***DataBox LE*** you can have: up to 5,000 records; a single instance, stream, part & media per record; no Advanced Boolean Search engine; no Sequence description; no grouping & linking; no advanced credits; no Additional info (description, rating, trivia, etc.).

In ***DataBox Reader*** you can only view and search the database, but there are no editing options.

I.1. Quick Start

1. Launch ***DataBox***;
2. Activate the Grid by pressing the ***GRID*** button;
3. Select a file from your media folder and *drag-n-drop* it in the grid.
4. A record appears in the grid, with the same name as the media file name.

Congratulations! You have just created your first record in the ***PlayBox*** database!

II. USER INTERFACE

The main part of the interface is dedicated to database visualization. It consists of three areas: ***TREE VIEW***, ***SEARCH FIELDS*** and ***GRID***.

II.1. Tree View

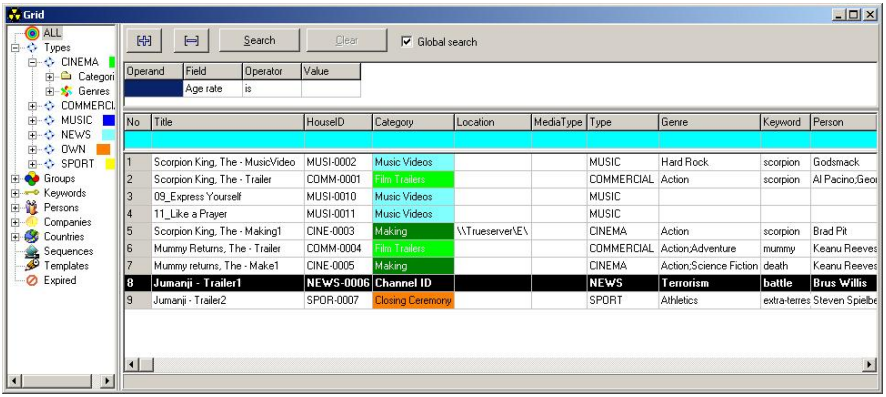
This area contains a tree chart of the **Classification scheme**, the **Credits** *(Persons, Companies, and Countries)*, the **Sequences**, the **Templates and** the **Expired entries**.
You can add, delete or change elements in **Tree View** by using the right mouse button.

II.1.1. Classification scheme and Credits

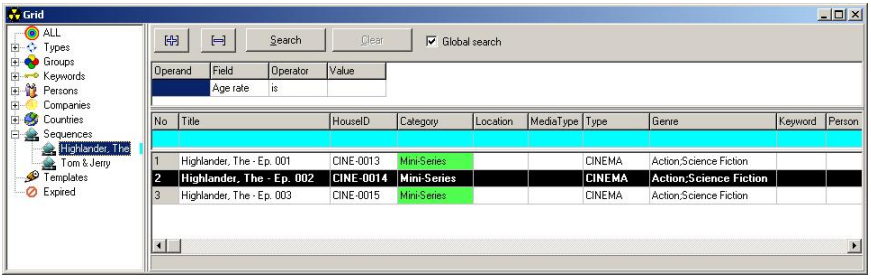
Here you can see the classification scheme and credits as they are defined in the relevant managers.

When a particular *Type, Keyword, Group or Credit* is selected, only the entries that correspond to the selected criteria are displayed in the ***GRID***.

You can add some entry to a specific classification element or credit, by drag-n-dropping it to that element.



II.1.2. Sequences node



This node displays the sequences. You can add a new sequence by right mouse clicking on the node and selecting [New] from the context menu. A dialog box window appears to fill-in the sequence's properties:

Sequence name the relevant name of the sequence.

Color – color for color coding.

First episode – the number of the first episode.

Last episode – the number of the last episode.

The first episode number could not be higher than that of the last episode.

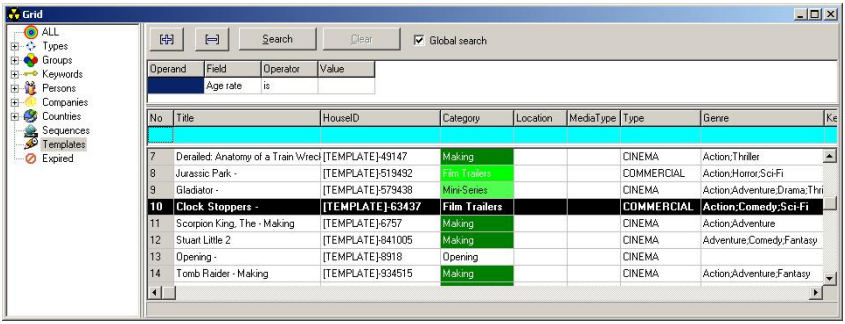
Templates – the template record name for this sequence. You could choose it from the list, create a new template record or not set a template. By default, it is set to [NONE].

After setting the episode numbers and the template record for a sequence, press the ***OK*** button to create as many records as the defined number of episodes. The data in these records will be the same as in the template record.

To delete a sequence, right-click on it and then click [Delete] in the context menu.

To change the sequence's properties or to add new episodes, right-click the sequence name and choose [Properties] from the context menu. A Property dialog box will appear and you will be able to change the number of episodes or the template record.

II.1.3. Templates node



This node is used for viewing and editing the templates. Templates are used as models for creating new records. Using templates saves efforts for entering uniform data in multiple records. They are very useful for creating sequences that consist of many records with the same data.

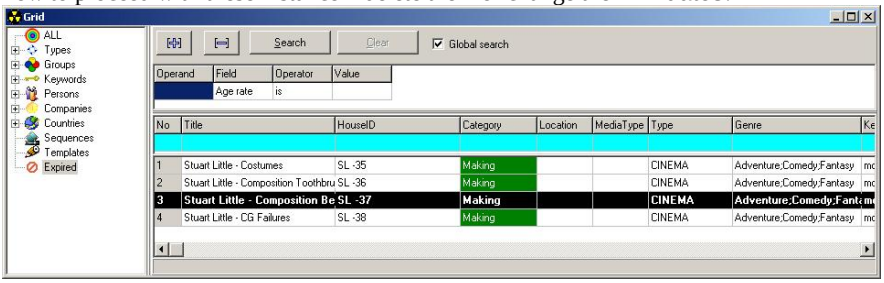
You can create a new template record in **New Record⇨*General*→** ☑*Template record*, or by right-clicking over the **Templates** node in ***Tree View*** and then selecting [New] in the context menu.

If the record is set as template, the following fields are inaccessible: ⇨***General*→***House ID* and *Episode No.*; ⇨***Instances*→[Media]** *Notes* and *Location*.

IMPORTANT: If the template record is designed for a sequence and there are any series created for this sequence, you cannot edit the template record anymore!
Templates do not appear in the **Grid** of ordinary records.

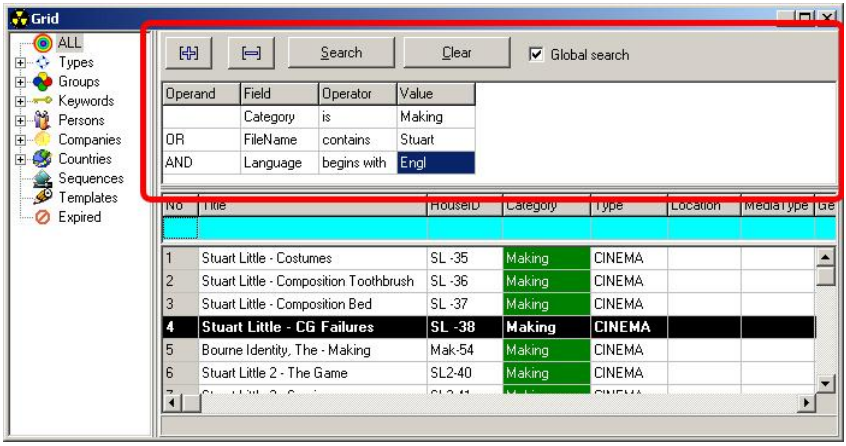
II.1.4.Expired node

This node is used to show the records that have expired instances. You have to decide how to proceed with these instance – delete them or change their *kill dates*.



NOTE: The expired instances are automatically displayed in this node only if you have assigned [notify] in **Options⇨*General*→** *After kill date expired*

II.2. Search Fields



The search fields' area could be shown or hidden in the ***GRID*** by pressing **<Ctrl> + F** .as well as by right mouse clicking on the grid and checking [Search] from the context menu.

A search inquiry line consists of the following cells:
- **Field** – a field from the entry description– *Title*, *Type*, *Genre*, etc.
- **Operator**:
is – means that the search result should be exactly the same as the keyword;
doesn't - the search result should not be exactly the same as the keyword;
contains - the result should contain the keyword;
does not contain - the result should not contain the keyword;
begins with – the result should begin with the keyword;
ends with - the result should end with the keyword;
before – the result should be before the keyword (when the keyword is a date);
after - the result should be after the keyword (when the keyword is a date).

Value – it is a **keyword** for searching**.** If the keyword is a date, it must be in: yyyy.mm.dd **(**year.month.day**)** format.
Operand - defines Boolean operands (**OR** or **AND**) between the search lines to refine or limit your search.

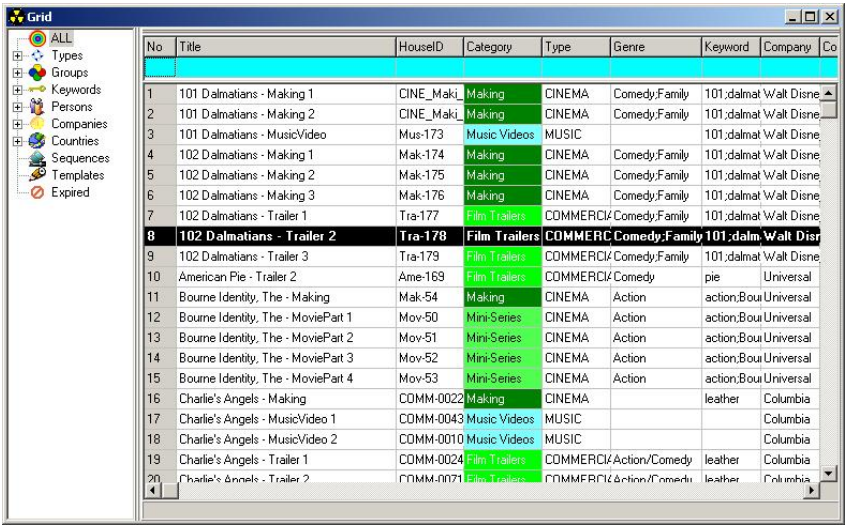
The following buttons are situated above the search fields:
Add button adds a new search inquiry line.
Remove button removes the selected line from the inquiry.
Search button starts the search.
Clear button clears the search inquiry.

Global search – If this flag is checked☑ the search proceeds in the entire database. If it is not checked☐, the search proceeds only in the previous search result.

NOTE: The Search procedure is not case-sensitive.

NOTE: After performing a search, the grid will display only the records that match this inquiry. If you want to see all records, clear the search inquiry and click **All** in the ***Tree View.***

II.3. Data Grid


Grid
ALL
Types
Groups
Keywords
Persons
Companies
Countries
Sequences
Templates
Expired
No
Title
HouseID
Category
Type
Genre
Keyword
Company
1 101 Dalmatians - Making 1 CINE_Maki_ Making CINEMA Comedy;Family 101;dalmat Walt Disne
2 101 Dalmatians - Making 2 CINE_Maki_ Making CINEMA Comedy;Family 101;dalmat Walt Disne
3 101 Dalmatians - MusicVideo Mus-173 Music Videos MUSIC 101;dalmat Walt Disne
4 102 Dalmatians - Making 1 Mak-174 Making CINEMA Comedy;Family 101;dalmat Walt Disne
5 102 Dalmatians - Making 2 Mak-175 Making CINEMA Comedy;Family 101;dalmat Walt Disne
6 102 Dalmatians - Making 3 Mak-176 Making CINEMA Comedy;Family 101;dalmat Walt Disne
7 102 Dalmatians - Trailer 1 Tra-177 Film Trailers COMMERCI Comedy;Family 101;dalmat Walt Disne
8 102 Dalmatians - Trailer 2 Tra-178 Film Trailers COMMERC Comedy;Family 101;dalm Walt Disr
9 102 Dalmatians - Trailer 3 Tra-179 Film Trailers COMMERCI Comedy;Family 101;dalmat Walt Disne
10 American Pie - Trailer 2 Ame-169 Film Trailers COMMERCI Comedy pie Universal
11 Bourne Identity, The - Making Mak-54 Making CINEMA Action action;Bou Universal
12 Bourne Identity, The - MoviePart 1 Mov-50 Mini-Series CINEMA Action action;Bou Universal
13 Bourne Identity, The - MoviePart 2 Mov-51 Mini-Series CINEMA Action action;Bou Universal
14 Bourne Identity, The - MoviePart 3 Mov-52 Mini-Series CINEMA Action action;Bou Universal
15 Bourne Identity, The - MoviePart 4 Mov-53 Mini-Series CINEMA Action action;Bou Universal
16 Charlie's Angels - Making COMM-0022 Making CINEMA leather Columbia
17 Charlie's Angels - MusicVideo 1 COMM-0043 Music Videos MUSIC Columbia
18 Charlie's Angels - MusicVideo 2 COMM-0010 Music Videos MUSIC Columbia
19 Charlie's Angels - Trailer 1 COMM-0024 Film Trailers COMMERCI Action/Comedy leather Columbia

The database list of entries is displayed in the **GRID**. The grid columns correspond to the fields from entry's description. You can define which columns to be visible in **Options⇨*Grid*→**[double click on the relevant column visibility status to change it]. The column position in the grid could be changed by *drag-n-dropping* the column name. Right mouse clicking on a column's name will resize the column.

The records are arranged in order of their registration in the database. You can define a default field to serve as a sorting filter for the entries in **Options⇨*Default values*→***AutoSort by***. Clicking on any column name will arrange the records according to the relevant feature. Clicking the same name once again will invert the arrangement. Thus clicking on **Title** will arrange the records in alphabetical order; and clicking it once again will rearrange them in reverse order.

If you click a field that contains figures once, the records will be arranged in descending order. If you click it twice, they will be arranged in ascending order.

A Black bar marks the currently selected entry. Clicking twice over it, invokes the entry properties.

The database grid supports the following functionalities:

II.3.1. Drag-and-drop

You can drag clips from one grid to another (from ***DataBox*** to ***AirBox*** or from ***DataBox*** to ***ListBox)*** or from the Grid to a specific ***Tree View*** node.

II.3.2. Multi-selection

You can manipulate many clips simultaneously – move, delete, edit, etc. To add more clips to the selection, hold down **<Shift>** or **<Ctrl>** key while clicking on the clips to add. **<Shift>** selects from-to, while **<Ctrl>** adds a single clip to the selection.

II.3.3. Multi-editing

This feature allows you to edit data in several records simultaneously. Select the records, right-click and choose [Edit] from the context menu. A ***Multiple Records*** window opens. It shows only the data fields that are identical for all the records. Differing data appear as "**Various**" in the data fields.

NOTE: **Multiple records⇨*Instances*** fields do not subject to multi-editing. Therefore, the Instances tab will not appear in the window at all.

After multi-editing, click **OK** and the changes you've made will take effect in all the selected records.

II.3.4. Sorting

By clicking over a field (column) name, you can sort the grid according to the data in that field.

II.3.5. Filtering

If you write a word in the row under a column's header, you can filter the Grid by this word in the relevant field. The way of updating the filtering result (after **<Enter>** or after every key-stroke) is defined in **Option⇨*Grid*→*Filter options***.

You can sort by one field and filter by another field at the same time.

NOTE: When filtering is being made, in the grid are shown only the records that correspond to this inquiry. If you want to see all records, delete the filtering word from the line.

II.3.6. Right-click menu

Right click over a line in the database grid invokes the following context menu:

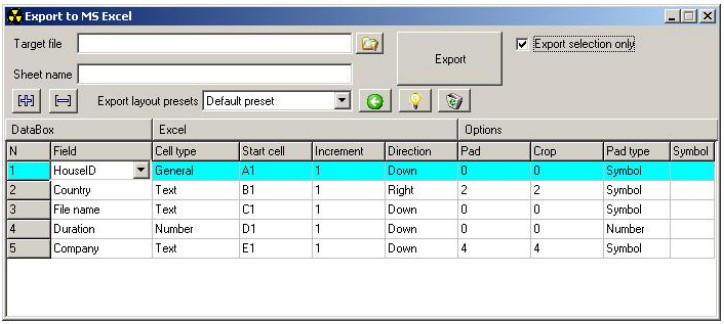
- New Record – opens an empty **New Record** dialog box.

NOTE: If a specific classification element or credit from the ***Tree View*** is selected at the same time, the new record will be automatically added to this element. The relevant fields in the **New Record** dialog box will be automatically filled-in with the corresponding information.

- Delete Record deletes the selected record.
- Edit Record opens the selected record's properties for editing.
- Options – opens the **Options** menu.
- Update – updates the database. Thus, the changes you've made will take effect.
- Print current table – opens a dialog box for printing the database.
- Preview – invokes the ***Clip Trimmer*** for clip preview, if there is an MPEG file connected to the record.
- Search – shows/hides the search area in the **GRID**.
- Check files – starts checking the availability of the files connected to the records. This procedure updates the information on missing files.
- *Export to/Import from XML*. These features will allow you to exchange metadata with other applications.

NOTE: Export to XML applies only to the current selection in the grid. If you need to export the entire database, please select all lines first (**Ctrl + A** in your keyboard).

- Export to MS Excel – opens a dialog box for exporting records to ***MS Excel***.



Target file – the Excel file name to which you want to export the data. Use it, if you have a previously created Excel file. For example, you could prepare a template form in ***MS Excel*** to be filled with records from ***DataBox***.

If you leave the *Target file* field empty or type a non-existing file name, a new Excel file will be created (***book1.xls***, by default).

Sheet name – enter the name of a sheet in the Excel file. If you don't, the data will be exported to the first sheet in the file.

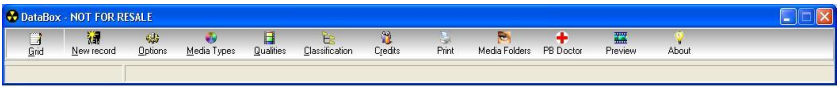
In the following fields, you can define the export details:
DataBox:
Field – which field from the record description in ***DataBox*** should be exported.
Excel:
Cell type – the type of the cell (text, number, etc.);
Start cell – the number of the first cell in ***MS Excel***, from which on will be placed the exported data;
Increment – the cell's increment;
Direction – the direction of filling the cells in the ***MS Excel***'s table (down or right)
Options:
Crop - defines the number of symbols from ***DataBox*** field content that will be exported.
Pad to – the number of symbols, which should appear in Excel's table for the respective field. It is used, if you select cropping, but the ***DataBox's*** field does not contain enough symbols. In such cases, you can complete it with some symbol (a padding symbol).
Pad type – the padding symbol type (symbol or number).
Symbol – the padding symbol itself.

Each ***DataBox*** field you want to export should be entered at a new line in the **Export** dialog box. Enter new line by pressing the ***Plus*** button. To delete a line, select it and press the ***Minus*** button.
If you want to export only the selected records from the ***DataBox*** grid, you have to check☑ the **Export Selection only** box.
Press the ***Export*** button to start exporting the records.

WARNING! If you haven't entered a *Start cell,* the exported data will overwrite any existing data in the ***Excel*** sheet, as the default start cell is A1.

IMPORTANT: In order to be able to export to ***Excel*** files, you need MS Excel installed on the ***DataBox*** machine.

III. MENU BAR

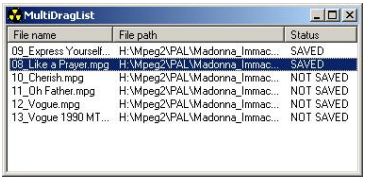


III.1. Grid

Pressing this icon invokes the database grid. It has already been described in details above. (See Section II.3.)

III.2. New Record

A new record can be created either by *drag-n-dropping* a file from local or network devices or by invoking and filling up *New Record* dialog box. You can *drag-n-drop* several files simultaneously and create records for them.



During *drag-n-dropping*, a **Multi-Drag** window will appear to confirm entering and describing of each file. There are three columns in the Multi-Drag list: **File name, File path** and **Status**. Double click on a file to create a record in the database. The *New Record* dialog box will appear. After entering the file, its status becomes "SAVED".

During the next *drag-n-drop*, you will see the Multi-Drag list with all previously dragged files that haven't been saved. To remove a file from the list, right-click it and choose [delete] from the context menu. To remove the whole list, choose [clear list] from the context menu.

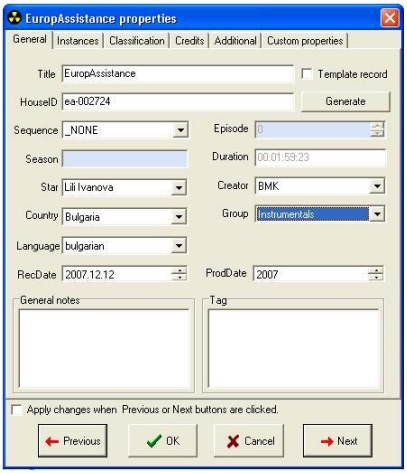
NOTE: The Multi-Drag list is not a default option. If you want to see it during drag-n-dropping, you will have to activate it by un-checking the *Use Auto insert* box (*Options*⇨*General*→☐*Use Auto insert*)

If you do not want to describe each entry separately during *drag-n-dropping*, check *Options*⇨*General*→☑*Use Auto insert* box and select a template record or *Default options* for describing the files. Thus, most of the data will be filled-up automatically.

If a specific category from the *Tree View* is selected during *drag-n-dropping* (or during pressing the ***New Record*** button), the new record will be automatically added to this element.

After pressing the ***New Record*** button in the **Menu** bar, a *New Record* dialog box appears. It consists of six pages: ***General, Instance, Classification, Credits, Traffic, and Additional.***

III.2.1. General



This is the main information form about the new entry:

- *Title* string contains the entry's name. If the entry has been created by *drag-n-dropping*, this string is automatically filled with the filename, without its extension.

- *Template record* – if you check it, the record will become a template record. Template records are very useful for creating sequences that comprise of many records with the same data. When the record is a **template**, the following fields in this page are not editable: *House ID, Episode No., Instances' notes and Instance's location.*

NOTE: If the template record is intended for a sequence and there are any series created to this sequence, you cannot edit the template record anymore!

- *House ID* – Typically the House ID is a unique identification of production house, including some extra data, such as production date and/or version, etc. The House Id can be entered manually or generated automatically, depending on your settings (**Options⇨*HouseID***). *See the appropriate user's manual section for detailed description.*

- ***Generate*** button – you can press it if the ***HouseID*** *Automatic generation* option has been activated beforehand (**Options⇨*HouseID*→☑*Automatic generation)*. Use it, if you want to regenerate a House ID.

- *Sequence* this string is designed for description of content that participates in certain types of sequences – music album, TV series, Mini Series, etc. You can define the sequence properties in advance from the *Tree View*.

- *Episode* – a unique number of the entry in the selected sequence. This field is not active when there is no sequence selected.

- *Season* – Many TV Series usually are made in batches, called Seasons. For example, a typical TV series is made of up to 20 seasons, each containing up to 20 episodes. This field is not active when there is no sequence selected.

- *Duration* displays the total duration of the entry. It is calculated automatically.

- *Star* – Usually this is the name of the main talent of the program. It corresponds to the *"Star"* category in **New Record⇨*Credits*⇨*People***.

- *Creator* – Usually this is the main producing company. It corresponds to the "***Creator***" category in **New Record⇨*Credits*⇨*Company***.

- *Country* – As a rule it should contain the Country of Origin. It corresponds to "***Country of origin***" in **New Record⇨*Credits*⇨*Countries/Locations***.

- *Language* – Describes the original language of the entry.

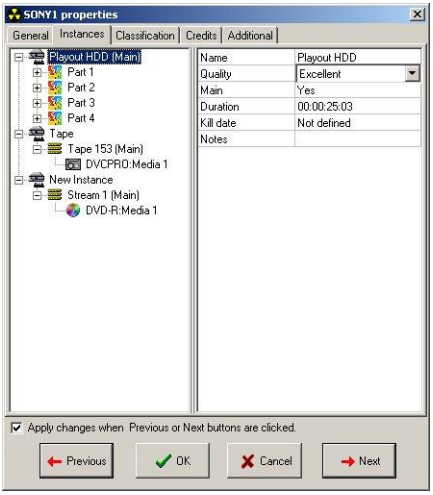
- *Group* – Generally used to classify a program in a group, other than the standard classification scheme – Type/Category/Genre. To choose a group, select it from the list. To add a new group, choose "Add new group…" from the list and enter a new group name.

- *RecDate* stands for the date, when the entry was recorded in the database or received at the TV facility. By default, this field is filled-in with the current date.

- *ProdDate* usually stands for the program production date or year. By default, this field is set to current date.

- *Notes* – Used for storing useful notes about the program. It is a text field, limited to 255 symbols (including spaces and punctuation).

III.2.2. Instances



Here are described the separate **instances** (copies) of each entry. It is possible to have several copies of the same program. Each copy might contain several **streams** (video/audio/text) and they could be recorded or split on separate **media**.

III.2.2.1. Main Instance

It is the default name of the first (original) copy. Its description appears in the right half of the window:

- *Name* – name of the instance. By default, the name is "main".

- *Quality* – subjective measurement of the instance's quality. It can be chosen from a list, previously prepared in the **Qualities** Manager from the **Main Menu**.

- *Main* – Determines whether the instance is the main one or not. Only one program instance could be "main instance". If there is only one instance, it will be named "main" by default.

The main instance is used in calculating the program duration, displayed in the ***Grid*** and in **New Record⇨*General***. When you have more than one instances, the main one is transferred to ***AirBox*** via drag-and-dropping the clip.

- *Duration* contains the Program duration. If the instance consists of several parts, their durations are cumulated.

- *Kill date* – The expiration date, when the particular instance (copy) has to be deleted. It appears if an Expiry period has been defined beforehand in **Options⇨*Default Values***. You can change the *Kill date* later. When the *Kill date* comes, there are two possibilities, definable in **Options⇨ *General*** – deleting the instance without notification or notifying for expired instances and showing them in ***Expired node*** in the *Tree View*.

- *Notes* – Used for storing useful notes about the instance. It is a text field, limited to 255 symbols.

To add a new ***Instance,*** right-click in the left window and select [New instance] from the context menu.

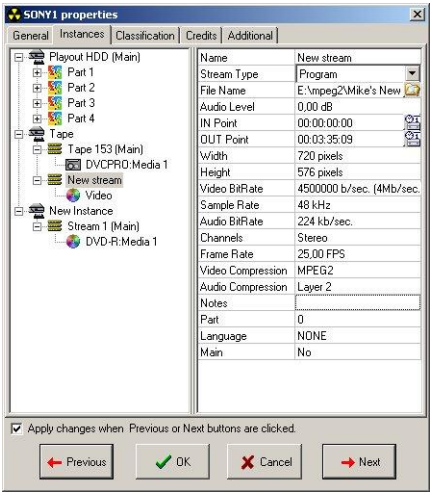
To delete an ***Instance***, right-click it and then click [Delete]**.**

- *Part* - It appears only when the entry has parts – it has been divided (and recorded) in several parts or trimmed (split) in separate sections with the ***Clip Trimmer***.

If you want to add a new ***part,*** right-click on the *Main Instance* and select [New part] from the context menu. If you trim the file, the parts are created automatically, according to the succession of the trimmed sections.

To delete a *part*, right-click it and then click [Delete].

Under one part you can define Streams and Media.



III.2.2.2. Main Stream

It is automatically set, if the entry was created through *drag-n-dropping* a file.

The description form to the right contains:

- *Name* – name of the currently selected stream.

- *Stream Type* – describes the stream type. It can be a Program, Video, Audio, Subtitles, etc stream.

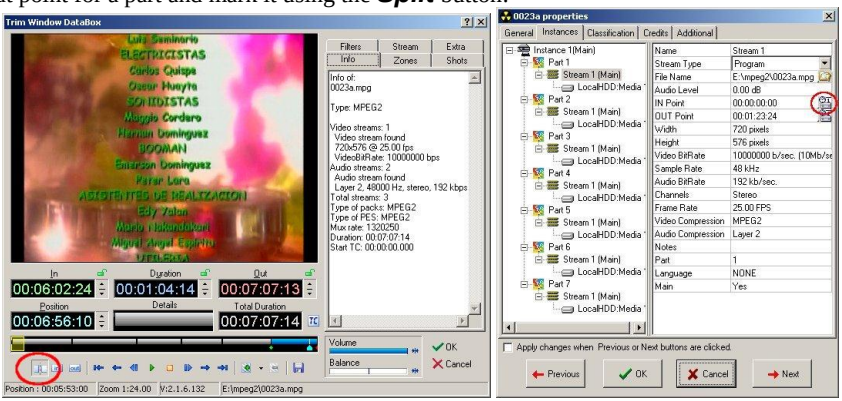
- *File Name* contains the stream filename and path. You can enter a file name using the ***browse*** button next to the field or by typing the file name manually. After typing the file name, you have to press **<Enter>**, in order to save the changes.

- *Audio Level* –describes the absolute audio level of an audio stream. Currently this value should be entered manually. Defining it helps ***AirBox*** to determine the average audio level of each program in order to avoid annoying audio level discrepancies when switching from one program to another while on-air.

- *IN Point* – By default it is 00:00:00:00. It can be changed by pressing the button in the right of the field. It invokes the ***Clip Trimmer*** and a new *IN Point* can be defined.

TIP (!) You can use the Clip Trimmer to split your media files in several parts:

Press the *In Point* clock to invoke the ***Clip Trimmer***. In it, use the cursor to locate the out point for a part and mark it using the ***Split*** button:



You can create as many parts as you wish. After Pressing ***OK***, all parts will be displayed under the Stream row.

- *OUT Point* – By default it contains the latest available timecode, depending on the program duration. It can be changed by pressing the button in the right of the field. It invokes the ***Clip Trimmer*** and a new *OUT Point* can be defined.

- *Width* the Video Image width in pixels. This field is not available when describing a tape.

- *Height* – the Video Image height in pixels. This field is not visible when describing a tape.

- *Video Bit Rate* – the Video bitrate extracted from the stream properties. This field is not visible when a tape instance is being created.

- *Sample Rate* – the Audio sampling rate.

- *Audio Bit Rate* – Audio bitrate extracted from the stream properties. This field is not available when a tape instance is being created.

- *Channels* – The number of audio channels found in the audio stream. This field is used only when describing files.

- *Frame Rate* – The actual video frame rate of the stream.

- *Video Compression* – the type of video stream compression.

- *Audio Compression* – the type of audio stream compression.

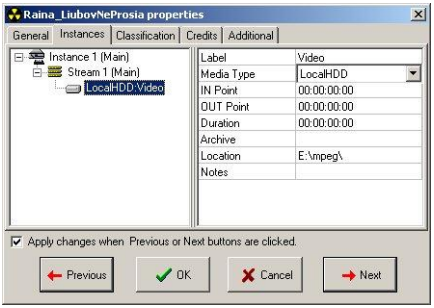
- *Notes* – Used for storing useful notes about the stream. It is a text field, limited to 255 symbols.

- *Part* – The number of the part. By default, this field contains a zero, i.e. there are no parts.

When the instance (copy) is not a file, the *Main Stream* fields are not applicable, except the *Stream Name, Stream Type, Note* and *Part*.

To add a new ***Stream*,** right-click *Main Instance* and select [New stream] from the context menu.

To delete a *Stream*, you should right-click it and then click [Delete] in the context menu.



III.2.2.3. Main Data

- *Label* – Media label (CD or partition label, tape user bits, etc.).

- *Media Type* – It is selected from a list, previously drawn in *MEDIA TYPES* manager. You can also add new Media types in this field by selecting [Media type manager] from the pop-up list. This will invoke the ***Media Types*** dialog box. Right-click on any row of the list and select [New] from the context menu; then specify the name, the prepare time, the color for color-coding, and the properties. See also the Media Types section (III.4.)

- *IN Point* – This field is visible if the media is a video tape (*Betacam, DVCam, DVCPro*, etc.). It shows the program's initial time-code on the tape (HH:MM:SS:FF). A media type is considered a videotape if its *Random Access* flag is not set (**Media Types→☐***Random Access*).

- *OUT Point* – This field is visible if the media is a video tape (Betacam, DVCam, DVCPro, etc.). It shows the program's final time-code on that media (HH:MM:SS:FF). A media type is considered a videotape if its *Random Access* flag is not set (**Media Types→☐***Random Access*).

- *Archive* describes the physical location of the copy (building, floor, room). The Archives are defined in **Classification→Archive→***right-click* →[New archive].

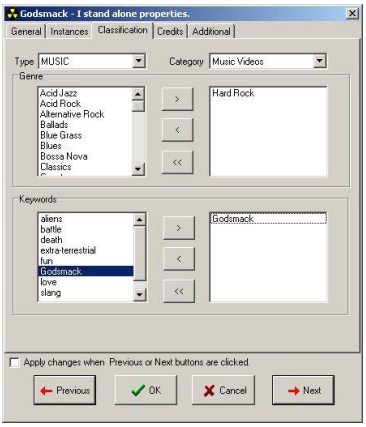
- *Location* – this is the exact position of the copy. It may be a shelf number, a barcode number, etc. If the copy is a file, this will be its location on the local or network devices.

- *Notes* – Used for storing useful notes about the media. It is a text field, limited to 255 symbols.

To add a new *Media*, right-click the respective *Stream* and choose [New media] from the context menu.

To delete a *Media*, right-click it and then click [Delete].

III.2.3. Classification



In this tab, you can classify an entry, using the classification scheme created in **CLASSIFICATION** manager in the **Main Menu**.

- *Type* this field describes the type of content – cinema, news, sport, etc. When you choose a *Type*, only the relevant *Category* and *Genre* will appear.

For example, for *Type* [cinema], *Categories* are [movie film], [documentary], [animation], etc.; and *Genres* are [action], [comedy], [drama], etc.

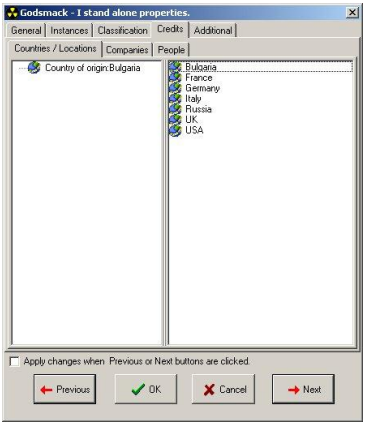
- *Category* –a category of the selected type. You can select only one category from the pop-up list.

- *Genre* – all the genres of a type. Select a genre from the left-hand field and move it to the right-hand field. You can do this in three ways: by double clicking it; by pressing the right-arrow **>>** button; or by right clicking on it and then choosing [Assign] from the context menu. Discarding a genre from the list is done in much the same manner as adding – using the left arrow **<<** button, or double clicking.

To add/delete a *Genre* from the list, right-click it and choose [Add/Delete] from the context menu.

- *Keywords* – any keywords for the entry. They are managed in the same way as *Genres*.

III.2.4. Credits



These are the program creation factors: ***Countries, Locations, Companies*** and ***People***.

This tab contains three pages with identical structure: each of them consists of two fields. In the left field are described some activities. For example, the activities for ***Countries*** might be **country of origin, target country,** etc.; the activities for ***People*** – can be **star**, **director**, **editor**, etc.

In the right field are listed the names of credits. For ***Countries*** – countries names, for ***Companies*** – companies names, etc.

To make a choice, you have to *drag-and-drop* a credit's name to some activity (i.e. from right to left).

To create a new **element** (activity or name), right-click and choose [Add new] from the context menu. To change/delete an element, right-click it and choose [Properties/Delete] from the context menu.

It is also possible to create lists of activities and names in advance – just open the **CREDITS** manager in the **Main Menu**.

- ***Countries/Locations*** – here are described the countries that have taken part in the making of content . Several countries could be added to each activity, except to **Country of origin**. The selected **Country of origin** is displayed in **New Record⇨*General*→*Country***.

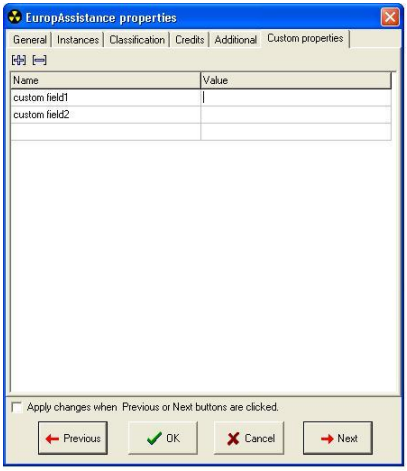
- ***Companies*** – companies took part in content creation. Several companies could be added to each activity, except to **Company: creator**. The selected **Company: creator** is displayed in **New Record⇨*General*→*Company***.

- ***People*** – artists that have participated in the making of content. Several people could be added to each activity, except to **Star**. The **Star** is displayed in **New Record⇨ *General*→*Star***.

III.2.5. Additional

Here you can enter additional information about the record, like **Plot Outline** , **Taglines**, **Comments** and **Trivia**.

III.2.6. Custom properties



In this window, the user can add any additional fields, not existing in ***DataBox***.

Press the **Plus** button to add new field line. Click in the line and add new custom property or select one from a list of existing custom properties.

In the relative **Value** field, enter the content of this new custom property.

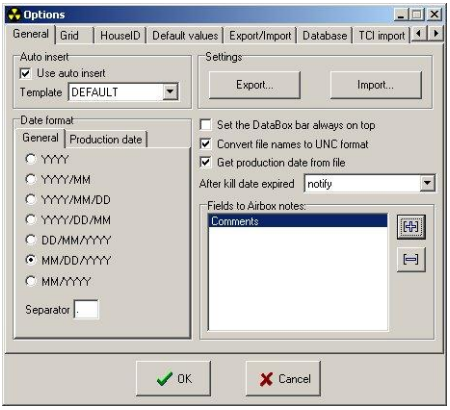
If you want to delete a property, select it and press **Minus** button.

Note: All custom properties could be included in xml import/export of ***DataBox***.

III.3. Options

Options dialog box allows defining useful settings, as well as defining some defaults. It contains several pages: **General, Grid, HouseID and Default Values**.

III.3.1. General



Data Base – displays the currently active database. If you want to change it, press the ***browse*** button to the right. **IMPORTANT:** The "server" station, which will host the database (***.GDB**) file should have the hard-drive shared as a single letter (***d, c***, etc.).

For example, if your GDB file is on drive **D**, it should be shared EXACTLY as "**D**". *Windows XP* tends to make the default share names explanatory (*i.e. D on PC Name*), so you have to be careful with that.

Auto insert – check it ☑ to make auto insertion of files into the database, when creating new records through *drag-n-dropping* files.

- *Template* – you can choose Default options for describing the inserted files as well as a template record.

Date format – defines a format for entering and viewing dates.

- *General* – Check ⦿ the preferred format *(year; year/month, year/month/day, year/day/month, day/month/year, month/day/year, month/year)* and define the separator sign. By default, the date format is DD/MM/YYYY and the separator is a *dot*.

- *Production date* – You can define a separate format for the *Production date* which can differ from the other dates. By default, the production date format is YYYY.

Settings – You can import / export all settings applied in the **Options** dialog.

- The ***Export*** button will save the settings into a ***.dbs*** file.

- The ***Import*** button will open an already created ***.dbs*** file and apply the settings to the current ***DataBox*** instance.

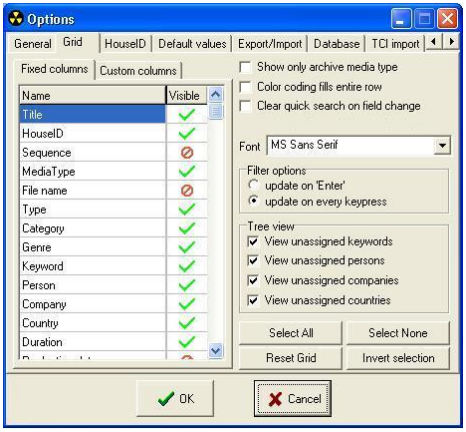
After kill date expired determines how ***DataBox*** should proceed with expired instances. There are two possibilities:

- delete the instances (if these are files) without notification.
- notify for expired instances and show their records in ***Expired node*** in the *Tree View*.

Fields to AirBox Notes – here you can define which fields should appear in the *Notes* field in ***AirBox***.

To add a field, press the ***Plus*** button to the right of the window and choose a field from the list. To delete a field, select it and press the ***Minus*** button.

III.3.2. Grid



In the left of this page are listed all available data fields.

Data Fields List

Name - the name of the data field

Language – the default language of the field. Mostly used for non-Latin languages. It defines which keyboard locale will be used when entering data in the particular field.

Visible – Each field could be visible [Yes] or not [No] in the **Grid**. To switch the visibility status of a field, just double-click it.

Buttons

These buttons are valid only for to the fields' area.

- ***Select All*** button – sets all fields visible.
- ***Select None*** button – sets all fields to invisible.
- ***Reset Grid*** button – resets the fields' settings as defined in the program.
- ***Invert selection*** button – inverts all settings.

Check boxes:

- *Show only archive media type* – In the Media type column, shows only **Media types** that have *Archive* flag (see the Media types section below for further details).

- *Color coding fill entire row* – fills the entire grid row with the color of the field as selected for color coding in **Options➔*Default values*** and previously set in the relevant **Main menu** item.

- *Clear quick search on field change* – when typing in a column header to perform a quick search, ***DataBox*** will filter only the entries that correspond to your requirements. Then, if you click on a category in the tree view, the filter will still apply. Thus, you will actually refine the search. If you want to be able to view all entries that belong to a category from the tree view after a quick search has been performed, check this box.

- *Custom columns before fixed columns* – check this, to order the custom columns before fixed columns in the Grid.

Filter Options

This field defines how the **Grid** will be refreshed during grid column filtering.

- *Update on Enter* – the **Grid** will be refreshed after pressing **<Enter>**.
- *Update on every key press* – the **Grid** will be refreshed after each key stroke.

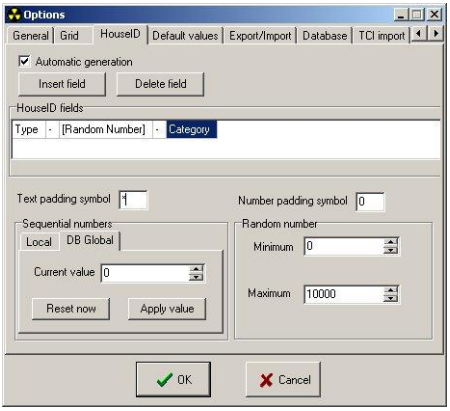
NOTE: Use this option with caution – it may take a long time to refresh a large database.

Tree View Options:

The Tree view displays the classification scheme of records as a tree (similar to Windows' Explorer). You can define various classification criteria and enter their representatives in advance, such as countries, persons, keywords, etc. If you want to see all these entries (no matter if they are assigned to any record or not) in the Tree View, check ☑ the corresponding boxes in **Options⇨*Grid* →*Tree View***. If you want to view only the entries, that are assigned to some record, do not check the boxes ☐.

A more detailed description of the Tree View and the Classifications can be found further in this manual.

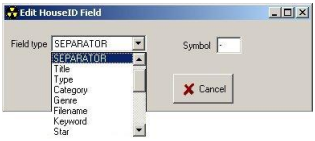
III.3.3. HouseID



The House ID is a unique identification number. It can be entered manually or generated automatically. This **Options** submenu helps you create your own pattern for auto-generating House IDs.

- ***Automatic generation*** – check it to perform auto-generation of House ID.
- ***Insert field*** button – inserts a new field to the House ID.
- ***Delete field*** button – deletes the selected field from the House ID.
- ***House ID fields*** – this area shows the House ID sequential.

By default, the House ID consists of two fields, separated by a hyphen. The first field contains three symbols from the entry's ***Title*** and the second field contains a ***Random number*** between 0 and 10000.

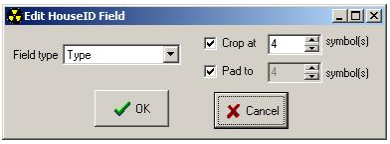


Double clicking in the white *House ID fields* area (☑ *Automatic generation* - checked), invokes a context menu with the following items:

- [Insert field] – invokes a dialog box for choosing a field.
- [Insert separator] – inserts a separator. The Default separator is hyphen.
- [Delete field] deletes the selected field.

To change a House ID field, double click on it. A list of possible fields (a text-containing field from entry's description, a separator or a number) will appear.

- Choosing a text-containing field opens the following property window:



Field type – shows the field name.

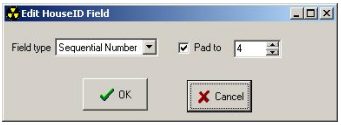
Crop at – check it ☑, if you want to use only a part of the field's content in the House ID number. 11 Define the number of symbols to be included.

For example: Field type [Title], *crop at* [3], means that only the first three symbols from the field *Title* will be included in the House ID number.

Pad to – check it☑, if you want to fill the missing symbols from field's content with a specific symbol. This option is applied, when the number of symbols in the text field is less than the number in the *Crop at* box.

For example, if you define *Crop at* [4] symbols, but the concrete entry's field contains only **3** symbols, it is one symbol short. The missing symbol could be filled-up with a specific symbol or left empty, depending on the ☑/☐ status of the *Pad to* box. The padding symbol is the same for all fields and is defined in **Options⇨*HouseID*→*Text padding symbol.***

- Choosing a number-containing field, opens the following property window:

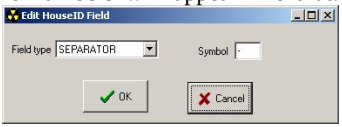


Field type – shows the field name. It could be a random or a sequential number.

Pad to – check it, if you want to fill-up the random/sequential number with a specific symbol and define the number of symbols. This option is used, when you want to visualize numbers with equal length.

For example, if you define a **Random number** between 0 and 100, it will appear in House ID like that: 2, 34, 98, 5, etc. If you check ☑ the *Pad to* box, define *pad to* [3] and the previously set padding symbol is [zero] (it is defined in **Options⇨*HouseID*→*Number padding symbol***), the numbers will appear like that: 002, 034, 098, 005, etc.

- Choosing [separator] opens a property window, where you can define the separator sign. By default, the separator sign is a slash.



Text padding symbol here you can define a symbol for filling-up missing characters, when the *Pad up* box is checked. By default, it is an interval.

Number padding symbol – symbol for filling-up missing digits, when *Pad up* box is checked. By default, it is zero.

Sequential numbers – this field contains the sequential number features, presented in two pages:

Local

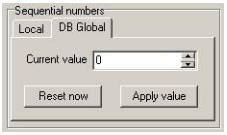
This page concerns the generation of sequential numbers when the computer is in local mode, i.e. the records are created by one user. The sequential numbers are stored in the registry. If you want to use such a number in the House ID, select [Sequential number] from the pop-up menu that appears after double-clicking in the House ID fields.

Current value this field displays the current sequential number on a local machine.

Reset type – By default, the sequential number is never reset [None]. If you want to reset the sequential number, specify the reset period: *daily, weekly, monthly or annually*.

Reset now button – press it to reset the sequential numbering immediately.

DB Global



This page is used when many users work simultaneously on the database. The sequential numbers are generated according to the moment of creating the record (i.e. at opening the **New record** dialog box). The numbers are saved in the database. If you want to use such a number in the House ID, select [DB sequential number] from the dialog box that appears after double-clicking in the *House ID fields.*

Current value displays the sequential number in the data base

Reset now and ***Apply value*** buttons are self-explanatory.

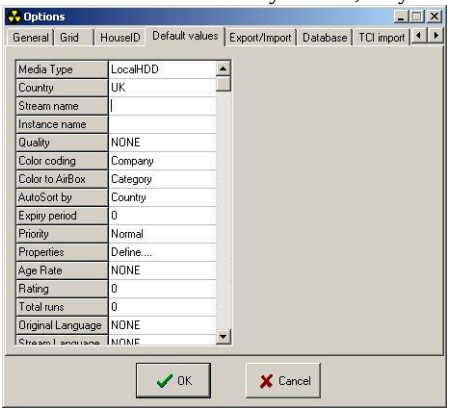
Random number the random number features are described in this field:

Minimum set the minimum value of the random number. By default, it is zero.

Maximum – set the maximum value of the random number. By default, it is 10000.

III.3.4. Default Values

You can define values for the most used record's fields in this tab. By default, they are not defined.



- *Media type* - the default Media type set in **New Record⇨ *Instances* →** *Media Type.*
- *Country* - the default *Country of origin* set in **New Record⇨*General*** **→***Country.*
- *Stream name - the default stream name* set in ***New Record⇨ Instances*→[Stream]** *Name.*
- *Instance name* – the default name of the instance set in **New Record ⇨*Instances*→ [Instance]** *Name*.
- *Quality* – the default instance visual quality set in **New Record⇨ *Instances*→[Instance]** *Quality.*
- *Color-coding* – in this cell you can define which **grid** column will be color-coded.
- *Color to AirBox* – defines which field's color will be transferred during *drag-n-dropping* to ***AirBox.***
- *Auto sort by* **–** defines a field which will be used for ***Grid*** sorting by default.
- *Expiry period* – the number of days after an instance (copy) was created, whereupon the instance (copy) will be considered expired. If it is set to zero, no expiration will take place. It corresponds to the *Kill date* in **New Record⇨ *Instances*→** *Main Instance.*
- *Priority* – the default priority set in **New Record⇨*Traffic*→***Priority.***
- *Properties* – the default properties set in **New Record⇨ *Traffic*→** *Properties.* Clicking on the field to the right opens a window to define properties.
- *Age rate* – the default Age rate set in **New Record⇨*Traffic*→***Age Rate.***
- *Rating* – the default Rating set in **New Record⇨*Additional*→***Rating.***
- *Total runs* – the total number of runs set in **New Record⇨*Traffic*→***Runs remaining.***
- *Original Language* – the language of the record's content
- *Stream Language* – the language of the main stream.

III.3.5. Export/Import

This feature will help you in exchanging metadata and instances. It will create automatically an **.xml* file containing all the metadata for an instance and will attach it to the instance file. Thus you can transfer not only instances, but all the metadata related to them.

- ☑ *Exclude files from import/export* will not include the stream links (file paths to instances) from the exported metadata as they will probably not be the same at the destination workstation.

- ☑ *Exclude notes from import/export* will not include the note fields in the **.xml* file. Since generally the notes are related to personal opinion and workstation-specific matters, checking this field will prevent notes from exporting and you-from importing such information.

- ☑ *Multi-file export* When you have selected more than one file for export at the same time, this feature will create a separate **.xml* file for each instance exported. If the box is not checked☐, the metadata for all exported instances will be saved in one **.xml* file. Thus, the recipient will not be able to forward, or process these files independently from each other without losing their metadata.

- *When importing existing record* – There are several ways to proceed if there are some duplicate entries in the current database and in the database you're importing. You can choose one of the following:

⦿ *Skip* – the duplicate entry will not be imported at all

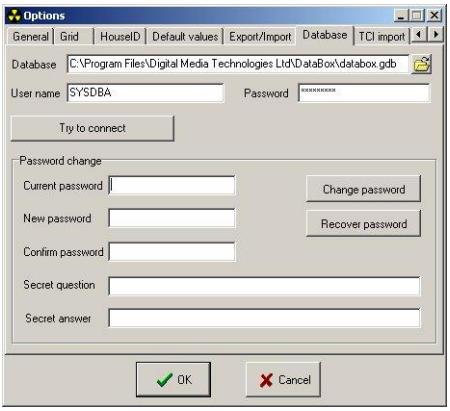
⦿ *Overwrite* – the duplicate entry will replace the currently existing record

⦿ *Rename* – the duplicate entry of the imported database will be entered in the grid as a separate row, its house ID will be incremented with a grave accent character and a number (2 for the first duplicate).

⦿ *Prompt* – a dialog will pop-up informing you that a duplicate entry was detected during import. You will have to choose the way to proceed manually.

NOTE: Export to xml is valid only for the currently selected row(s) in the grid. If you need to export the entire database, please select all lines first (**Ctrl + A** on your keyboard).

III.3.6. Database



In the Database tab, you can change the database to be edited in DataBox. The name of the currently open database is displayed in the upper part of it. You can browse for another database using the yellow folder button to the right of this string.

Below, you will see the default User name and Password. These are used automatically when connecting to a database.

You cannot change the username, but you can change the password by filling the strings in the area below. When changing the password for the first time, press the ***Recover password*** button. The default secret question will appear on the screen. Type [24] and click ***OK***. The default password will be entered in the *Current password* string. Enter the new password and confirm it in the strings below. Then, enter a Secret question and a Secret answer to be used in case you forget the new password. Push the ***Change password*** button to apply the new one.

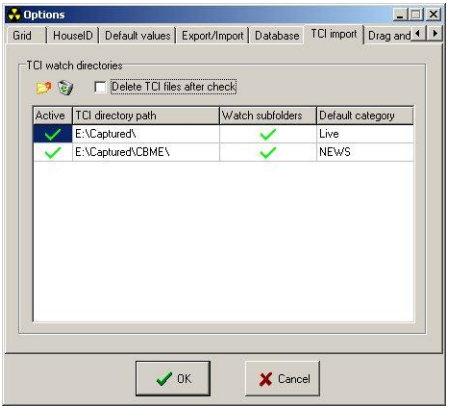
If you happen to forget your password, press the ***Recover password*** button. The secret question you wrote during the password change will appear on the screen. Type the secret answer in the dialog and click ***OK***. The current password will be entered in the relevant string above.

To check if you have entered the password correctly, push the ***Try to connect*** button.

WARNING! Always check if you can connect to the database, using the new password, before closing DataBox! If the password is wrong, you will not be able to connect to the database and you will not have access to the Database tab to recover it!
Please make sure to write clear secret question and answer to avoid such occasions! We will NOT be able to recover your password and the database will become inaccessible!

III.3.7. TCI Import

This feature provides options for automated media assets insertion. It uses the *.TCI files, generated by ***CaptureBox*** during ingest. ***DataBox*** watches a number of pre-defined folders. When a new *.TCI file appears in a watch folder, a new record is automatically created in the database. If an already existing *.tci file has been modified in the watch folder, ***DataBox*** checks if such a filename exists in the database (in the stream filename filed). If not – a new record is created. If yes – no new record will be created in the database.



The fields from *tci files are imported in ***DataBox*** as follows:

***.TCI field**	**DataBox field**
Name	Title
File	Stream filename
Comments	Notes
TC In	Media TC In string
TC Out	Media TC Out string
Tape ID	Media label

NOTE: The remaining *.tci fields are not imported in DataBox.

Use the button to browse for a watch folder. To enable/disable a watch folder, double click in the Active cell in the beginning of its row. Double-click in the watch folder's path to change it. To the right of it, you can enable/disable watching subfolders.

In last column in the watch directories grid, you can assign a default category for each watch folder. Thus, every time a new clip appears in the relevant folder, the default category will be assigned automatically during its import in the database.

This means that if you specify "Documentary" as *Default Category* , all clips, imported from *TCI Directory 'path* D:_test db\ will automatically become category "Documentary".

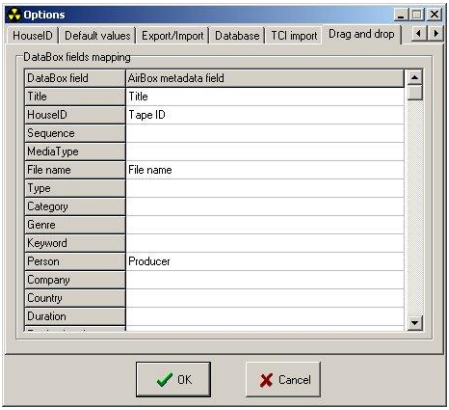
NOTE: As Categories are subentries of database types, it is quite possible that the same categories appear in more than one type. In such a case, all new entries will be assigned as the highest TYPE in the database tree that contains the specified default category. For example, if both type CINEMA and type NEWS contain category Documentary, the new entries will be assigned type CINEMA at it is higher than NEWS in the database tree.

To delete a watch folder, select it in the folders list and click the button.

☑*Delete TCI files after check* can be used, if you want ***DataBox*** to delete all *tci files after each import operation.

IMPORTANT: Automated database insertion will not be carried out if there are no TCI files!

III.3.8. Drag and Drop



This page allows importing additional metadata from ***DataBox*** when dragging clips into ***ListBox*** and ***AirBox***. All explanations in this paragraph apply for both ***ListBox*** and ***AirBox***.

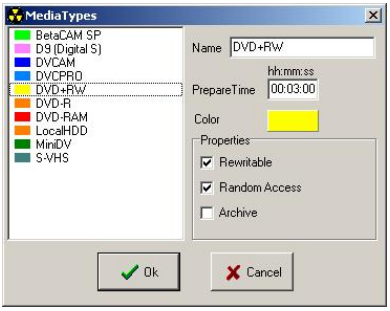
As the ***General*** clip properties can accommodate a limited number of data, now you can use the Metadata page of clip properties in ***ListBox*** to add as many additional fields as necessary.

All you have to do is map the relevant fields in ***DataBox*** to the corresponding Metadata categories in ***ListBox***.

The gray column in the left of this tab contains a list of all fields available in ***DataBox***. The column to the right of it allows you type the names of the metadata fields in ***ListBox***. Thus, you can map the Person from ***DataBox*** to the Producer metadata in the clips' properties in ***ListBox***.

NOTE: This mapping does not affect the standard drag-n-drop operation of ***DataBox***: Even if you do not assign the ***DataBox*** Title to the *Title* filed in ***ListBox***, it will still be transferred to the relevant cell in the ***General*** clip properties. But if you want to copy the ***DataBox*** Title to a metadata field as well, you will have to type that field's name here.

III.4. Media Types



It defines the types of media that are typically used in a TV facility – *CD, DVD, DVCAM, DVCPro* etc.

There is a list of predefined media types in the left area of the window.

To add new ***Media type,*** right-click in the left area and then click [New] from the context menu. A dialog box appears to enter the name of the new media type.

To rename a ***Media Type***, right-click on it and select [Rename]. To delete a ***Media Type***, right-click it and then click [Delete].

When you select a ***Media Type*** from the list, its properties are displayed to the right and you can edit them:

Name – media name.

Prepared time – the time needed to start playback from this media type. This time should account for the time needed to bring it (out) from an archive and upload it to the online storage.

Color – chose color for media type color-coding;

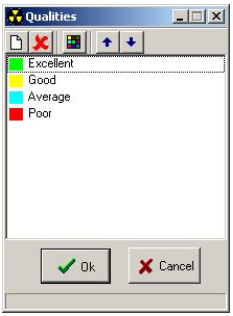
Properties – define if the media is Rewritable, Random Access, and/or Archive.

When ☑*Archive* is checked, the *Archive* field in **New Record⇨*Instances*→ Media** becomes editable. This field describes the physical location of the program instance.

When ☑*Random Access* is checked, the fields *InPoint* and *OutPoint* in **New Record⇨*Instances*→ Media** become non-editable.

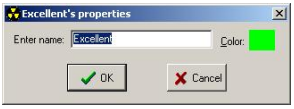
NOTE: DO NOT set *Random access* for video tapes.

III.5. Qualities



This **Main menu** item allows you to define a subjective measuring of the visual quality of an instance. Different quality levels can be user-defined. If a new instance with different quality is received later, this data field will help you determine which instance is better.

A New **Quality** is added by pressing the ***New*** icon from the menu-bar or by right-clicking and selecting [New] from the context menu. Doing so will open a dialog box where you can enter the name of the new quality and define a color for it.

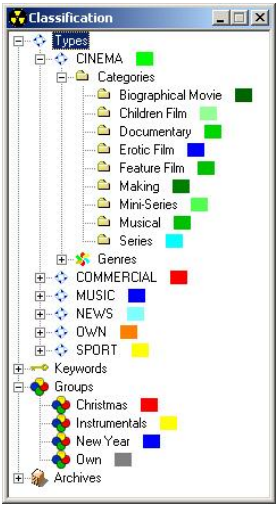


To **change** the name or the color of a **Quality** level, select it and press the ***Property*** icon in the menu-bar. You can also do that by right-clicking on it and choosing [Properties].

To delete a **Quality** level, select it and press the ***Delete*** icon in the menu-bar or right-click it and then click [Delete].

The ***Up*** and ***Down*** arrows in the menu-bar are used for changing the ***Qualities'*** order.

III.6. Classification



This is the classification structure of entries. The available classification criteria are ***Type*****, Keyword** and ***Group***. ***Type*** describes the content type (cinema, news, sport, music etc.**)**. This criterion has two sub-branches:

- **Category** – defines categories for each ***Type***. For example, for *Cinema* these are Children film, Making, Series, etc.
- **Genres** – defines genres for each ***Type***. For example, for *Cinema* these are Action, Drama, Comedy, etc.

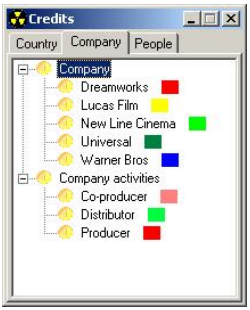
- ***Keywords*** – specific, keywords, assigned to the entry that are used for easier search.
- ***Groups*** **–** despite their type, entries may pertain to the same group. For example, it may be a special (gold) fund or Christmas/New Year programs, etc.
- ***Archive*** – describes the physical location of the copy (building, floor, room, etc).

To add a ***new*** classification criterion (such as **Type**, **Category**, **Genre**, **Keyword** or **Group**) or ***Archive***, you have to right-click an existing element and choose [New] from the context menu. This will open a dialog box to enter the name of the new element (type, category, etc.) and define a color for color-coding. The default color is white, i.e. there is no color.

To change an element's feature (name or color), right-click it and choose [Properties] from the context menu.

To delete an element, right-click it and choose [Delete].

III.7. Credits



This is a manager for description of video-content creators divided in three pages: ***Countries***, ***Companies*** and ***People***. Each page contains two lists: list of **activities/positions** and list of **names**.

For example, the **activities** for ***Countries*** might be *country of origin, target country, shooting location,* etc.; the **activities/positions** for ***People*** might be *star, director, editor*, etc.

The lists of **names** in the relevant pages contain country names, company names and personal names.

To add a new **activity** or a new **name,** right-click the relevant list and then click [New] from the context menu. Enter a name and define a color for color-coding in the dialog box.

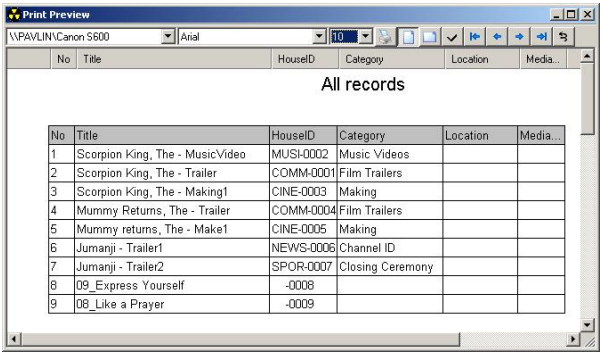
To change the name or the color of a credit entry (**name** or **activity**) – right-click on it and choose [Properties] from the context menu.

To delete a credit entry, right-click it and then click [Delete].

III.8. Print

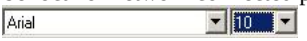
The print-preview window opens after pressing the **Print** button in the **Main menu**. It shows the database grid and the records listed in it – the entire database, or a search result, etc.

The columns' size and order are the same as in the grid.



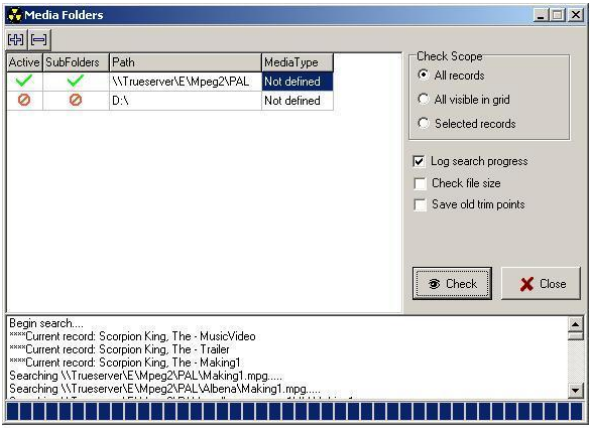
No	Title	HouseID	Category	Location	Media...
1	Scorpion King, The - MusicVideo	MUSI-0002	Music Videos		
2	Scorpion King, The - Trailer	COMM-0001	Film Trailers		
3	Scorpion King, The - Making1	CINE-0003	Making		
4	Mummy Returns, The - Trailer	COMM-0004	Film Trailers		
5	Mummy returns, The - Make1	CINE-0005	Making		
6	Jumanji - Trailer1	NEWS-0006	Channel ID		
7	Jumanji - Trailer2	SPOR-0007	Closing Ceremony		
8	09_Express Yourself	-0008			
9	08_Like a Prayer	-0009			

The following fields and buttons are situated along the upper panel of the window:

- *Name* of the printer (it may be local or network connected printer).
- *Font type* and *Font size* 

- Button ***Print*** - hit this button to start printing the list.
- ***Page Orientation*** buttons – choose Portrait or Landscape
- Button ***Selection*** – hit it to print only the selected grid rows.
- Button **First page** - go to the first page
- Button - go to the previous page
- Button **Last page** - go to the last page
- Button - go to the next page
- Button **Refresh table** – refreshes the table if the content has been changed in the meantime.

III.9. Media Folders



This option is used for searching for files, described in the database, but not presented in the respective folders. The search concerns only the main instances of the records.

In the **Media Folder** window you can create a list of search locations.

Path – the searching location, double click in the field to open the browse window.

Active – ✓check this cell to permit searching in the selected folder.

SubFolders – ✓check it, to search in the subfolders as well.

Media Type – which ***Media Type*** to be assigned to the record's instance.

To add a new line in the window, i.e. a new searching location, press the ***Plus*** button. To delete a line, select it and press the ***Minus*** button.

Check Scope – it is used to define the scope of records within which search will be carried out: *All records* in the database, *All visible in the grid* records or only the *Selected records*.

Log search progress – If this box is checked ☑, the search progress will be shown in the bottom area of the window.

Begin search....
*****Current record: Scorpion King, The - MusicVideo
*****Current record: Scorpion King, The - Trailer
*****Current record: Scorpion King, The - Making1
Searching \\Trueserver\E\Mpeg2\PAL\Making1.mpg.....
Searching \\Trueserver\E\Mpeg2\PAL\Albena\Making1.mpg.....

Check file size – check this to perform a checking for the file.

Save old trim points – check this, if you want to save already entered trim points into the record.

Press ***Check*** to start the search.

LISTBOX

I. GETTING STARTED

ListBox is dedicated to creating and editing ***playlists***. It allows preparing playlists in advance for the ***AirBox*** module and playing them on-air later.

ListBox doesn't need any special workstation or platform.

I.1. Quick Start

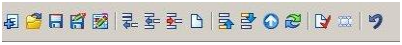
1. Launch ***ListBox***;
2. Right-click in the grid;
3. Select *Add* ➔*Media file*;
4. Browse for the files you want to insert in the playlist and click the ***Open*** button.
5. Go to **File** menu ➔ **Save playlist as** and browse for the location to save your playlist to.
6. Type some name for the playlist and press ***Save***.

Congratulations! You have just created your first ***PlayBox*** playlist!

II. USER INTERFACE

The interface of ***ListBox*** is identical with ***AirBox*** interface. It is designed like that for user's convenience. There some differences, which are described in this section.

II.1.Playlist Control Buttons



These buttons provide access to the most commonly used playlist functions. All commands from the Toolbar can also be found in the Menu Bar.

Some particular buttons on the Toolbar will appear enabled or disabled depending on the selection made.

The toolbar contains the following command buttons: New, Open, Save, Save as, Save as daily, Append Element, Insert Element, Delete Selection, Clear Playlist, Move Up, Move Down, Reset playlist, Randomize, Properties, Trim, and Undo. Their functions are described below in the relevant menu sections.

II.2. Playback control and counters

The **Master Counter** shows the elapsed time of the current playout session. Pressing the *Stop* button resets the counter.

The **Clip counter** is situated under the master counter. It can operate in two modes: count-up and count-down mode. Just double-click in it to switch between them!

The playback control buttons are situated under the Clip counter:

- ***Play*** – starts the playback.
- ***Stop*** – terminates the playback.
- ***Pause/Resume*** – temporary interruption and resuming of the playback. Playback resumes from the same point on.
- ***Next*** – will stop the currently playing clip immediately and will switch to the next clip in playlist. This happens by a smooth cut without any sound or visual artifacts.
- ***Return*** is active only after a **Jump** has been executed. Use this button to return to the position before the last **Jump**.
- ***Jump*** – terminates the currently playing clip immediately and starts playing the selected one regardless of its position in the grid.
- ***Cue*** – This button will interrupt the playback and will pause on the first frame of the selected clip. You can activate it also by holding down the **<Ctrl>** key and pressing the ***Jump*** button at the same time. Use this for preparing a clip for playback while showing its first frame on the output. Since this is a machine-and-decoder-dependent function, you

might have to increase the *Cue Delay* time in the **Settings** dialog box **(Settings➔General⇨*General* → *Cue delay*)**.

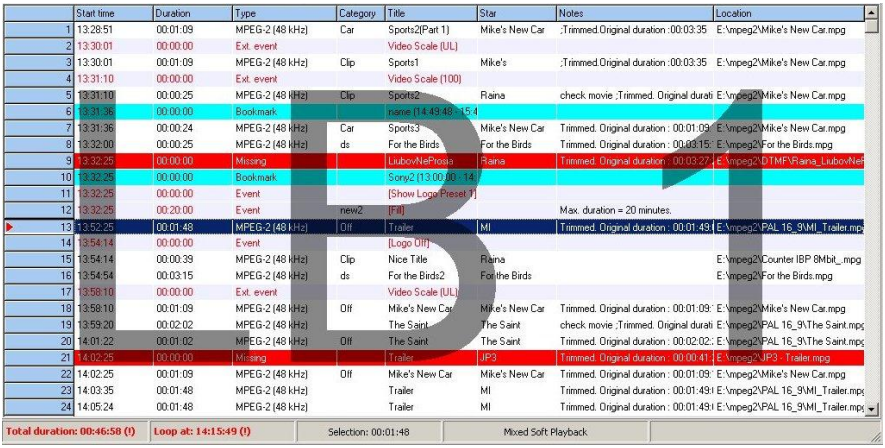
- ***Fix overlapping*** – press it to fix the overlapping issues in the playlist. The fixed time flags will be removed and the duration of overlapping files will be truncated.
- ***Fixed playlist start mode –*** press it to see the start time of the clips in the playlist as per the start time of the playlist, which is defined in Current playlist tab.

Press the button again to see the start times of the clips in the playlist as per the current system time.

II.3. Playlist Grid

This area is dedicated to playlist visualization. It looks the same as the ***AirBox** Playlist Grid*, but the grid headers are coloured so you can easily distinguish between ***AirBox*** and ***ListBox.*** The order of grid columns can be changed by drag-n-dropping them to the left or to the right.

You can control the columns to appear and their order in the grid from **Settings** menu **➔ General ➔ *Grid***.



	Start time	Duration	Type	Category	Title	Star	Notes	Location
1	13:28:51	00:01:09	MPEG-2 (48 kHz)	Car	Sports2(Part 1)	Mike's New Car	;Trimmed.Original duration :00:03:35	E:\mpeg2\Mike's New Car.mpg
2	13:30:01	00:00:00	Ext. event		Video Scale (UL)			
3	13:30:01	00:01:09	MPEG-2 (48 kHz)	Clip	Sports1	Mike's	;Trimmed.Original duration :00:03:35	E:\mpeg2\Mike's New Car.mpg
4	13:31:10	00:00:00	Ext. event		Video Scale (100)			
5	13:31:10	00:00:25	MPEG-2 (48 kHz)	Clip	Sports2	Raina	check movie ;Trimmed. Original durati	E:\mpeg2\Mike's New Car.mpg
6	13:31:36	00:00:00	Bookmark		name [14:49:48 - 15:4			
7	13:31:36	00:00:24	MPEG-2 (48 kHz)	Car	Sports3	Mike's New Car	Trimmed. Original duration : 00:01:09	E:\mpeg2\Mike's New Car.mpg
8	13:32:00	00:00:25	MPEG-2 (48 kHz)	ds	For the Birds	For the Birds	Trimmed. Original duration : 00:03:15	E:\mpeg2\For the Birds.mpg
9	13:32:25	00:00:00	Missing		LiubovNeProsia	Raina	Trimmed. Original duration : 00:03:27	E:\mpeg2\DTMF\Raina_LiubovNeP
10	13:32:25	00:00:00	Bookmark		Sony2 [13:00:00 - 14:			
11	13:32:25	00:00:00	Event		[Show Logo Preset 1]			
12	13:32:25	00:20:00	Event	new2	[Fill]		Max. duration = 20 minutes.	
13	13:52:25	00:01:48	MPEG-2 (48 kHz)	Off	Trailer	MI	Trimmed. Original duration : 00:01:49	E:\mpeg2\PAL 16_9\MI_Trailer.mpg
14	13:54:14	00:00:00	Event		[Logo Off]			
15	13:54:14	00:00:39	MPEG-2 (48 kHz)	Clip	Nice Title	Raina		E:\mpeg2\Counter IBP 8Mbit_.mpg
16	13:54:54	00:03:15	MPEG-2 (48 kHz)	ds	For the Birds2	For the Birds		E:\mpeg2\For the Birds.mpg
17	13:58:10	00:00:00	Ext. event		Video Scale (UL)			
18	13:58:10	00:01:09	MPEG-2 (48 kHz)	Off	Mike's New Car	Mike's New Car	Trimmed. Original duration : 00:01:09	E:\mpeg2\Mike's New Car.mpg
19	13:59:20	00:02:02	MPEG-2 (48 kHz)		The Saint	The Saint	check movie ;Trimmed. Original durati	E:\mpeg2\PAL 16_9\The Saint.mpg
20	14:01:22	00:01:02	MPEG-2 (48 kHz)	Off	The Saint	The Saint	Trimmed. Original duration : 00:02:02	E:\mpeg2\PAL 16_9\The Saint.mpg
21	14:02:25	00:00:00	Missing		Trailer	JP3	Trimmed. Original duration : 00:00:41	E:\mpeg2\JP3 - Trailer.mpg
22	14:02:25	00:01:09	MPEG-2 (48 kHz)	Off	Mike's New Car	Mike's New Car	Trimmed. Original duration : 00:01:09	E:\mpeg2\Mike's New Car.mpg
23	14:03:35	00:01:48	MPEG-2 (48 kHz)		Trailer	MI	Trimmed. Original duration : 00:01:49	E:\mpeg2\PAL 16_9\MI_Trailer.mpg
24	14:05:24	00:01:48	MPEG-2 (48 kHz)		Trailer	MI	Trimmed. Original duration : 00:01:49	E:\mpeg2\PAL 16_9\MI_Trailer.mpg

Total duration: 00:46:58 (!) | Loop at: 14:15:49 (!) | Selection: 00:01:48 | Mixed Soft Playback

Grid Features:

- The ***Color Coding*** in the grid provides additional information to users:

Dark Blue bar shows the currently selected clip – all actions, i.e. Move Up/Down is applied to it.

Red text rows contain events. You can insert the same events as in ***AirBox***.

Red-colored rows represent clips, which cannot be found on the specified file location. A red minus appears in front of the clip position number.

- *Drag-n-Drop* – It allows dragging playlist items within the grid or from one grid to another (from ***DataBox*** or from/to ***AirBox)***.
If you hold down the **<Ctrl>** key while dragging, the executed operation is **Copy.** If you just drag-n-drop, the operation is **Move**.
- *Multi-selection* – allows simultaneous manipulation of many clips– move, randomize, etc. Clips can be added to the selection by holding **<Shift>** or **<Ctrl>** key. The **<Shift>** key selects from-to, while the **<Ctrl>** adds a single clip to the selection.
- *Double-clicking over a clip* invokes the ***Clip Trimmer***. A detailed description of the ***Clip Trimmer*** can be found further in the manual. Double-clicking over a missing clip invokes its properties dialog. If you want to view the properties of an existing clip, right-click in its row and select **Clip properties…** from the context menu.
- *Right-clicking* in the grid opens a context menu. It contains commands from the **Edit menu** and the **Playlist menu** that are described further in the manual.

- *Columns description:*

- Start Time – shows the start time of each clip.
- Duration – shows the actual duration of each clip. If a clip has been trimmed, its new actual duration is displayed in this column.
- Type column shows the type of the clip (*MPEG, or AVI DV*).
- Category column contains category information fed by ***DataBox***. The background is colored with the predefined category color.
- File Name – contains information about the file-paths and names. If you need to change the path of certain file in ***List Box***, just press **<F8>** to open the Browse dialog.
If a file is missing after the playlist is loaded in ***AirBox***, its line will be skipped and the playout will continue with the next available clip.
- Title, **ClipID**, **Star** columns contain data fed by ***DataBox***, describing the clip name, clip ID and the performing artists. You can edit these fields manually in ***ListBox***, in the clip properties dialog.
- Notes – displays trimming notification***;*** and data from the fields, defined in **DataBox➔Options⇨*General*➔*Fields to AirBox notes***. You can edit these notes in the clip properties dialog in ***ListBox***.
(!) TIP: You can choose the columns to be shown in the grid. Go to **Settings** menu **➔ General ➔ *Grid*** and check the ones you would like to see. If you'd like to change the columns order, rearrange them in this dialog or simply drag their headers while working in the playlist.

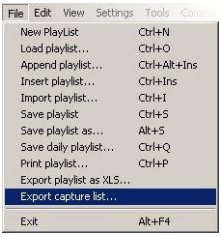
II.4. Status Bar

The Status bar is located along the lowest part of the ***ListBox*** window.
Its first cell – *Total Length* – shows the playlist duration. If it is longer than 24 hours, the number of days will be displayed in brackets in front. The figure in parenthesis in the end shows the number of rows in the list. The Second field – *End at/Loop at* – shows

when the playlist will end, if the playlist is longer than 24 hours, the number of days will be displayed in brackets in front. The third cell – *Selection Length* – represents the duration of the currently highlighted lines in the grid. The fourth cell displays the currently active plug-in.

NOTE: ***ListBox*** is always running on the Software Mixed plug-in. As this plug-in supports virtually all file formats, please go to **Settings** menu ➔ **Modules➔ Output** and select the plug-in you are planning to use in ***AirBox***. This will allow for correct file verification in ListBox.

III. MENU BAR



The *Menu Bar* is situated in the upper left end of the window and contains the same menus as ***AirBox***. However, some of the options are disabled as they are not relevant in playlist preparation. The following paragraphs contain description of the differences that appear in ***ListBox***. Please, check the ***AirBox*** File menu section above for detailed information about the common settings.

III.1. File Menu

III.1.1. Export Capture list

If there are missing files in the playlist, you can create a list for ***CaptureBox*** to ingest them. Select **Export capture list** in **File** menu and browse for the location to save the playlist to. The resulting capture lists (**.cap*) will be named after the currently loaded playlist.

III.1.2. Export Logs to XLS

This File menu item appears in ***AirBox***, but it is not visible in ***ListBox***.

III.1.3. Reload Graphic Rules

This File menu item appears in ***AirBox***, but it is not visible in ***ListBox***.

III.2. Edit Menu

This menu contains commands related to playlist editing. As it is identical to the ***AirBox*** Edit menu, please check that section above for details.

III.3. View menu

This menu is identical to the ***AirBox*** View menu. The only difference is that in ***ListBox*** you cannot view external preview window while in ***AirBox*** you could.

III.4. Settings menu

As the Settings menu contains many playback-related options, here you will find most of the differences between the two modules.

III.4.1. General

In the ***General*** tab of this options dialog, there are several fields that are not accessible in ***ListBox***:

☑*Restart playback after* – this setting is always enabled.

☐*Enable remote IP control* – This functionality is related to remote control of playback. As ***ListBox*** is intended for playlist preparation, it is not needed here.

TC transmission options – as they are related to on-air subtitling, they are not needed in ***ListBox***.

In the ***Interface*** tab, there are two options that are always enabled and inaccessible:

☑*Hide hardware Reset button* – as ***ListBox*** does not use any hardware, this button is not necessary here.

☑*Overlay channel number* – this is the setting that allows overlaying the ***ListBox*** watermark in the background of the playlist grid. As ***ListBox*** and ***AirBox*** look very similar, it is always good to have it there, so the operators can distinguish easily between the two applications.

The ***Skip Zones*** tab is not visible in ListBox.

III.4.2. Modules

AirBox Output tab – here you can find a list of presets that will be used for file verification while building your playlists in ***ListBox***. All you have to do is choose the platform and file format you intend to use for playout in ***AirBox*** and double-click to assign it.

In the ***Remote*** tab, you can enable the events plug-ins you intend to use in ***AirBox*** and configure them. If ***AirBox*** and ***ListBox*** are running on the same server, these settings will be shared between them. Please check the ***AirBox*** section for external events description.

The ***Logo*** tab and the ***TC*** tab are not relevant in ***ListBox***, therefore they are disabled.

III.4.3. Output

As ***ListBox*** uses the Mixed Software plug-in, this menu item will always display the output settings of this module. Please check **Settings** menu ➔ **Output** ➔ Soft Mixed plug-in in the ***AirBox*** section above for details.

III.5. Tools menu

The **Tools** menu is identical to the ***AirBox*** Tools menu. Please check the relevant section above for details.

III.6. Commands menu

The commands menu contains some playback-related and logo-related commands. As they are identical to the ***AirBox*** commands, please check the relevant section above for details.

III.7. Help menu

III.7.1. About

Clicking this menu item displays the "About" box of the ***ListBox*** module. It contains useful information about the module version, WIBU Box number, license type, registration, etc.

III.7.2. Help

This menu item opens the ***ListBox*** context-sensitive help. It is still under development.

III.7.3. PlayBox Doctor…

Choose it to start a tool that collects automatically data about your system and current setting in order to provide you with proper support. All you have to do is fill-in the mandatory fields and send the resulting PlayBox Doctor report to us. See detailed description of the PlayBox Doctor features in the Basic PlayBox manual.

TITLEBOX

I. GETTING STARTED

TitleBox module is an on-air graphics manager. You can create different static or dynamic objects in ***TitleBox***, such as rolls, crawls, still pictures, clocks, etc. and save them in projects. The projects could be used directly for broadcasting or as customized templates.

In ***TitleBox*** you can also start objects from previously created project(s) at different times, thanks to its **Scheduler.**

TitleBox works synchronously with the ***AirBox*** playout. Separate objects in ***TitleBox*** can be started or stopped via ***AirBox***, by inserting *TitleBox Net control events* in an ***AirBox*** playlist.

I.1. Quick Start

Launch ***TitleBox***;

Click the ***Crawl*** button in the object palette in the left;

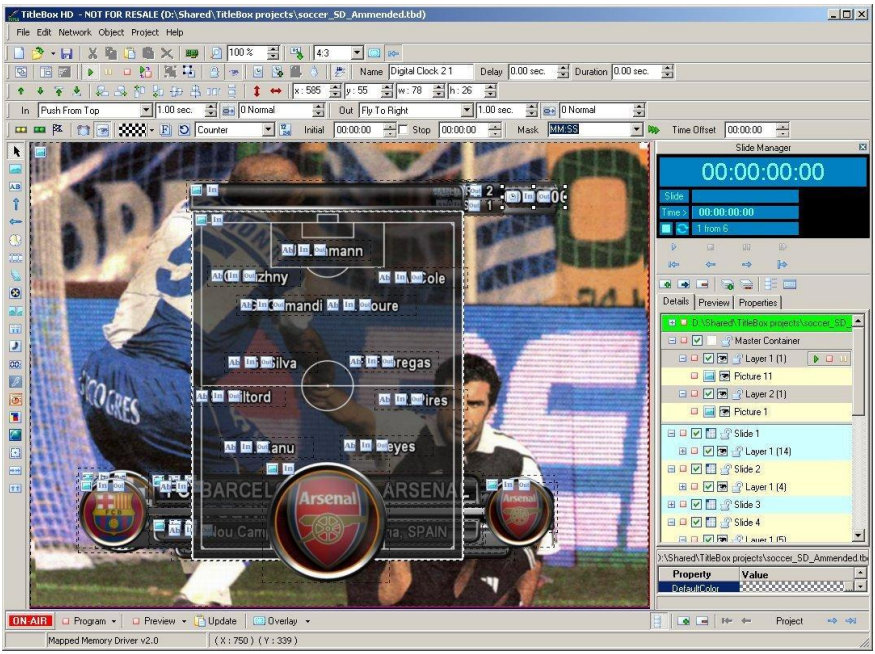
Draw a rectangle in the **Preview Area**;

Type a text in the **Properties** dialog box and press ***OK***;

Press the two ***Play*** buttons – one in the bottom of the window and one in the third row of the taskbar.

Congratulations! You have just created your first TitleBox crawl!

II. USER INTERFACE



II.1. Work Area

ThitleBox interface is very user friendly and easy can be used in live envorpment. The main part of the user interface is Work area. It shows the objects, their positions, types and status.

Objects can be moved and resized in this area. If an object is too complex and is not rendered yet, a yellow/black sign saying "**Rendering**" will appear on the screen. This sign will automatically disappear when the rendering is complete.

The little icons in the upper-left corners of the objects show their type, lock status and transitions. You can enable/disable the icons from **Project** menu ➔ **Options** → ***General*** → ☑*Show Objects Icons*.

The color bar in the bottom of the work area displays the current mode of operation. By default, preview mode is outlined in blue. You can change this color in **Project** menu ➔ **Options** → ***General*** tab.

II.2. Toolbars

The **Toolbar** is designed to facilitate the project management, individual object control, as well as object ordering and alignment:

The ***New***, ***Open*** and ***Save*** buttons correspond to the relevant commands in **File Menu**. The ***Cut***, ***Copy***, ***Paste*** and ***Delete*** buttons correspond to the relevant commands in **Edit Menu.**

Paste as Copy/ In Slide will create a new instance of the object that is copied in the clipboard. Unlike simple ***Paste*** that creates a new object, ***Paste as Copy*** does not create objects. All changes applied to the originally copied object will be applied to all its instances.

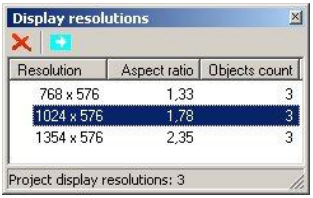
The ***Select Display device*** button opens the list of available hardware drivers, from which you can select the one to work with. *See also the corresponding section in the Project Menu description*.

TIP (!) If you want to change the driver before its initialization, hold down <**Ctrl + Shift**> during ***TitleBox*** startup to open the Driver select dialog.

The ***Zoom*** spin-box allows resizing the work area, so you could see the whole project at a glance. It is very useful for viewing HD projects.

This button opens the **Data Source Manager** window. It contains all supported data providing plug-ins. You can use them to "translate" different types of data and display the information they contain in some of the ***TitleBox*** objects. Please check the Data Source Manager section further below.

When the ***Output aspect ratio*** is changed, TitleBox will automatically change the size of the objects according to the selected aspect. All the aspect changes concerning one particular project are listed as pre-sets in the ***Display resolutions*** dialog. To open it, press the button. The dialog to the right will appear. It provides possibilities for fast switching between the different pre-sets. Pressing the button, or by double-clicking one of the rows will initiate an aspect change. To delete a pre-set, use the button.



The ***External aspect control*** button is pressed by default. It is intended for automated switching of the aspect ratio according to an external source. Such a source can be WSS present in incoming video, for example.

The ***Objects list*** button shows a window with a list of all objects available in the current ***TitleBox*** project.

The ***Properties buttons*** are object-related. They allow viewing or changing the properties of the currently selected object.

There are two types of properties: **Standard Properties**, that provide the standard object options, and **Property Tools**, which provide an additional set of properties. The **Property Tools** are active only for texts, rolls and crawls.

IMPORTANT: The **properties can be interactively changed at any moment**, even when the object is running on-air.

The ***Play***, ***Pause Stop***, and ***Toggle Play/Stop*** buttons control the play status of any particular object. They correspond to the relevant commands in the **Object Menu.**

(!) TIP: While a project is in play mode, you can control the separate objects in it through the **Short Action** function.
Press and hold **<F4>** while setting the desired action:

- Enter the name of the object in the *Name Mask* field (it corresponds to the *Name* displayed in the second row of the toolbar). **! This string is case sensitive!**
- Select the action [Play/ Pause/ Stop/ Play Toggle/ Select/ None] using the left and right arrow keys on the keyboard. The default action is [Play].
- Release the **<F4>** key to execute the selected action.

The [Play Toggle] command will switch to Play or Stop, depending on the current status of the object: you just have to write the name of a currently playing object and release the **<F4>** key to stop it, and vice versa.

If you apply a unified naming system for your objects, you could control them simultaneously (using the **wild card** functionality).

For example, if your objects are named using a letter and a number (i.e. *c1*, *c2*, *c3*, etc.), you can activate an action for all of them by typing [*c] in the *Name Mask* field

Group and ***Ungroup*** buttons are intended for grouping and ungrouping a selection of objects.

Lock and ***Visible*** buttons define the object status. It could be locked for moving and resizing or not. It could also be visible in the preview area or not.

Schedule buttons concern project scheduling. The scheduling function allows starting each object in a project at a specific time/day of week, with specific parameters.

Schedule window button – opens the scheduler.

Add to Schedule button – adds the selected object to the schedule.

Remove from Schedule button – removes the selected object from the schedule list.

Show Events List button will open a list of all events, assigned to the currently selected object. See also the Events Manager description further in this chapter.

Mix object button defines the draw mode of the object. If the button is pushed, two or more overlapping objects will be blended.

(!) TIP: When in **Mix object** mode, you can switch between the overlapping objects using the ***<Alt>*** + ***click*** combination. The name of the currently selected object will appear in the *Name* field and will be highlighted in the Object list window. You can activate this window from within the **Object** menu.

Name field – contains the name of the object. The default names are [Type]_[#], i.e. [Crawl 1], [Roll 3], etc. You can change them at your will. Names are most important when you use Objects list window, where only names and properties are displayed. In order to change the object's name, just select the object and than enter new name into the ***Name*** field.

Delay field –you can specify a delay for each individual object. A three-second delay means that the object would start three seconds after you have pressed the ***Show object*** button.

Duration field – here you can specify duration for an object, if needed. The duration determines how long the object will be displayed after pressing the ***Show object*** button.

Order buttons - allow defining the objects' order in case they overlap. Overlapping dynamic objects is not desirable.

Alignment buttons - allow aligning objects to each other. Those buttons work when more than one object is selected.

Lock buttons - used for locking the horizontal or vertical (or both) sizes of the object.

X and ***Y*** numeric fields - stand for X and Y positions of the selected object in the 2D space.

W and ***H*** numeric fields - stand for Width and Height of the selected object.

NOTE: You cannot change some objects' size during their running on air.

The transitions toolbar will help you in setting your objects' In and Out transition effects:

First, select the transition effect from the ***IN*** and ***OUT*** drop-down list. The available types are Cut (None), Cross Fade, Fly and Wipe. They are not active for **Analog clock** objects.

In the spin-boxes next to the ***IN/OUT*** fields, set the duration of this transition (by default it is 1.00 second).

NOTE: Increasing the figures in these fields will decrease the speed of the transition.

Finally, define the type of motion during the transition (ascending, descending or constant). By default, the motion type is set to [0 Normal]. This means that the transition will proceed on constant speed.

For example, if you have set in effect Fly From Left and duration 2 seconds, your object will move on constant speed from left to right till it reaches the desired position for two seconds. If you set the motion type to [(1 to 5) Ascending], the object will appear slower and its speed will increase during the 2 seconds of transition. In descending mode, the speed of transition will decrease.

The ***Full screen transition*** buttons are situated next to the transition duration spin-boxes. You might need this functionality in case there are several grouped objects on the screen and these objects have the same transition effect and duration. If you trigger or stop such objects simultaneously, they will move in relation to each-other, because they have to cover different distances on the screen for the same period. Using this button will make objects move together, but not in relation to each-other, during the transitions. The transition of all grouped objects will look as if the entire screen is moving, not the separate objects.

The lowest toolbar contains object-specific settings that change depending on the currently selected object.

If no object is selected, this toolbar allows changing the work area and the grid.

Push the Token button if you need to be more precise while drawing the objects in the work area.

You can change the colour of the drawing canvas from the *Work Space* drop-down palette. To change the colour of the surrounding area, use the *Back* palette.

☑*View grid* is checked by default. If you do not want to view the grid dots, uncheck it.

TIP (!) You can adjust the distance between the dots in **Project** menu ➔ **Options** ⇨ ***General*** tab.

☑*Snap To Grid* – if this box is checked, all objects in the project will be aligned to the nearest grid point.

If you want to load a picture as a background in the work area, you can browse for it after pressing the button.

NEW: TIP (!) You can take a snapshot of the current output (fill and key) from ***TitleBox*** by pressing **<Ctrl>** + **<F12>** keys on your keyboard. Then, you can paste the shot into a picture editor and save it to a file.

II.3. Object Palette

The **Object palette** contains buttons for all supported graphics objects. Click on the object you need and draw a rectangle in the work area to create it Press this button to select object(s)by dragging a rectangle around them.

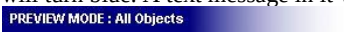
Create a Still picture object.
Create a Text Template object (with background).
Create a Roll object (vertically running text).
Create a Crawl object (horizontally running text).
Create an Analogue Clock object (with custom background and clock hands).
Create an Animation object (a sequence of 32-bit *.tga* files, or animated *.gif* files).
Create an Animation File.
Insert Direct Show Media Source.
Insert a Banner object.
Create a Chat note object.
Create a sound object (any DirectShow-supported sound formats – *.mp3*, *.wav*).
Create a Digital Clock object (with custom background and font).
Insert a flash object.
Insert a Power Point presentation.
Create a Primary shape – squares, ovals, triangles with outline offsets.
Create a browser object.
Create a Screen capture object.
Create a chat line
Create a chat roll
Create 3D picture
Create 3D text
Insert 3D Mesh object

II.4. System Bar

The system bar is situated in the bottom of the interface window. It contains buttons for hardware control:
ON AIR – playout notification filed. It blinks red when TitleBox is on air (i.e. the Program driver is playing).

Program – this is the button that controls the program output driver. Pressing it will start/stop the graphics frame buffer. If it is not running, no graphics will appear on the output. Pressing the arrow to the right of it opens a drop-down list that contains several items:

Stop/Play – to stop or play the program output driver.
Clear will erase the graphics frame buffer, so there will be no remnants from any previously loaded projects.
Program Driver SetUp – opens the settings options of the currently selected Program driver.
Driver manager opens the list of available drivers, so you could choose the one to use for outputting the graphics or a driver to preview it.

Preview – this is the button to control the selected preview driver. While the preview driver is playing, the bar under the work area will turn blue. A text message in it will notify you that the Preview driver is running. 

The preview mode allows you to make changes in your project, and view them in a preview window without actually applying them on the output.

When the preview driver is stopped, all changes you make in the project will be applied real time on the output.

Pressing the arrow to the right of the Preview button opens a drop-down menu. It contains the same items as the ones of the program driver.

NOTE: You cannot create new objects while in preview mode! You can just edit already existing objects!

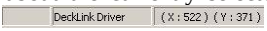
NOTE: Some objects might not appear properly in the simple preview window!

Update - While in preview mode, press this button to apply the changes to the program output.

Overlay – Use it to play a video file in the background of the work area. Press **Setup** first and browse for the file you need. Then control it using the **Play** and **Stop** commands.

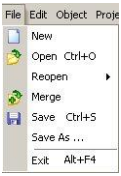
NOTE: Currently it is not possible to unload the background file unless you close ***TitleBox***. You can just change it. This feature is still under development!

II.5. Status Bar

The status bar displays information about the currently selected driver and the X/Y position of the pointer in the work area: 

III. MENU BAR

III.1. File Menu



This menu contains commands related to the project's file:

- **New** – allows creating a new project.
- **Open** – opens an existing project (**.tbd*).
- **Reopen** – shows a list of the ten recently open projects.

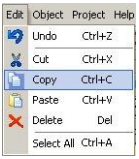
NOTE: If you reopen a file while working on another project, the latter will be closed without preserving any unsaved changes.

- **Merge** – merges the current project with another one.

NOTE: Global layer links might not operate properly because the Master container of the second project will appear as a simple slide in the merged project. You will have to drag its layers to the merged Master Container and set the layer links again.

- **Save** – saves the current project to the open file (**.tbd*).
- **Save as** – saves the current project to a specified file (**.tbd*).

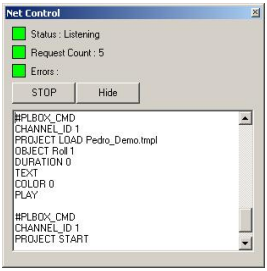
III.2. Edit Menu



The Edit menu contains object-related commands:

- **Undo** – undoes Move, Size, and Create. Please note that there is no undo for deleting objects.
- **Cut** – removes the selected object(s) and keeps them in the buffer-memory.
- **Copy** – saves a copy of the selected object in the buffer-memory.
- **Paste** – pastes the buffer content into the project.
- **Delete** – deletes the selected object.
- **Select All –** selects all objects in the preview area.

III.3. Network Menu



This menu concerns the connection between ***AirBox*** and ***TitleBox***. It is a feature of the full version only – it is not available in the light ***TitleBox*** version.
For detailed step-by-step guide how to integrate ***TitleBox*** with ***AirBox*** look up in APPENDIX 4 – Integration of AirBox with TitleBox

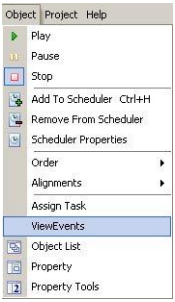
- **Export Project as Template** – exports the currently open project as a template. It will be saved in the specified Template folder. You have to specify this folder during ***TitleBox*** Net Control activation (*see Appendix 4 for details*).

IMPORTANT: The **project must be exported as a template,** so that it could be controlled through ***AirBox*.**

- Net control – shows the connection status between ***AirBox*** and ***TitleBox***.
IMPORTANT: The **Net control** function must be started to perform the network control.

III.4. Object Menu

This menu contains object-related commands:

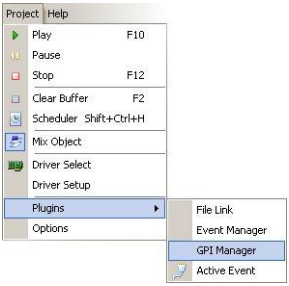


- Play- shows and runs the selected object on the graphics frame buffer.
- Pause- freezes the object, but it remains displayed on the graphics frame buffer.
- Stop – hides the object from the graphics frame buffer.
- Add to Scheduler – Adds the selected object to the Schedule.
- Remove From Scheduler – Removes the selected object from the Schedule.
- Scheduler Properties – Shows the properties of the schedule
- Order – This function is active when there are overlapped objects. You can move the selected object under or over the others.
- Alignments – This function is active when more than one object is selected. It allows aligning the objects to each other.
- Assign Task - this function invokes the Task Manager for the selected object. More detailed information you can read in section ***Task Manager***, further in that manual.
- View Events – select it to view all tasks assigned to the currently selected object. This menu item corresponds to the ***View Events List*** button in the toolbar .
- Object list – shows a window with a list of all objects available in the current ***TitleBox*** project (see its description further in this chapter).
- Property – opens the properties window of the currently selected object.
- Property Tools – opens additional properties windows for objects (text, rolls and crawls).

The commands from this menu (except Assign Task) are also displayed in the second uppermost row of the toolbar.

III.5. Project Menu

This menu contains project-related commands. Some of them (Play, Pause, etc.) are also operated through buttons, situated along the bottom of the window.



III.5.1. Project playout commands

- ***Play*** – starts the driver of the graphics frame buffer. If this button or command is not triggered, you will not be able to show any graphics on the screen.
- ***Pause*** – stops all objects' movement but they remain still on the screen.
- ***Stop*** – hides all objects from the screen but they remain loaded in the graphics frame buffer.
- ***Clear Buffer*** – clears the graphics frame buffer. This command helps avoiding accidental showing of remnants of an old project when loading a new one.
- ***Scheduler*** – Opens the scheduler window for setting up the scheduled graphics insertion.
- ***Mix Objects*** – This command is a duplicate of the ***Mix Draw Mode*** button. It will blend the overlapping objects in the project.

III.5.2. Driver Select

Click it to view the list of available hardware drivers and select the one to work with. If there are no hardware devices installed, the list will contain the following lines:

[Simple Preview Output Driver]- It is used for previewing the ***TitleBox*** project in a specially designed software preview window.

[Mapped Memory Driver] – When ***AirBox*** and ***TitleBox*** are being used in the same playout system, this driver is used to key the graphics over the video played in ***AirBox***. Please note that in such a setup, if you stop ***AirBox***, the graphics will stop as well.

[Dayang Driver] – A plug-in of an obsolete platform.

NOTE: You must not select it if you do not have a Dayang card installed on the machine!

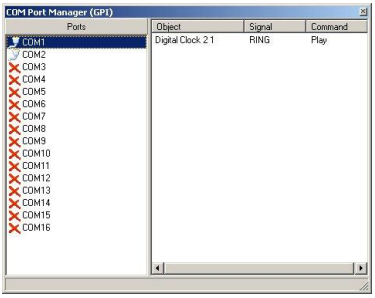
III.5.3. Driver Setup

Press it to change the output settings. The available options depend on the currently used driver.

III.5.4. Plug-ins

This item shows the list of available external plug-ins:

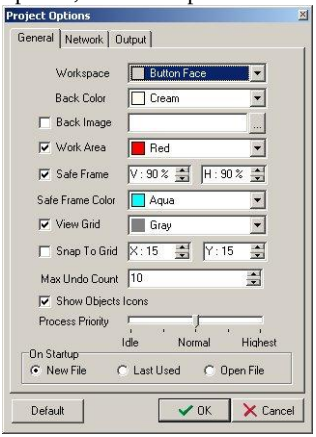
- ***File link*** – Opens a list of all objects in the project and their links (if any) to external files. Any changes in those files are applied in real time. The file links apply for the text-containing and picture objects!
- ***Task Manager*** – select this menu item to create a list of tasks related to objects in the current project. Check the detailed description into **Task Manager** section
- ***GPI Manager*** –. In the GPI manager, you can view all GPI events and the objects to which they have been assigned. To specify GPI events, you have to run **Task Manager** and made needed definitions there.



- ***Active Event (Tally)*** - This function keeps you informed whether there is any graphics showing on the screen or not. If there is at least one object that is being played, a high pulse is sent to the specified *COM* port. When there are no objects played, the pulse goes low. Thus, any external GPI device could be activated when there are no objects played out in ***TitleBox*** (i.e. a sound alarm to let the operator know that there is no graphics displayed). After choosing this menu item, you can select the desired *COM* port or [None] if you do not want to send out any pulses. Besides, you can specify the signal type (RTS or DTR). RTS will send a pulse to pin 7, and DTR – to pin 4. Pin 5 is the ground. For more details, please refer to the GPI pin out description in Appendix 1.

III.5.5. Options

Press it to open the ***Project Options*** window. It contains three pages – General options, Network options and Output options.



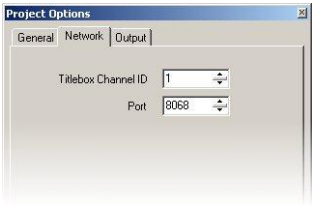
➢ ***General Options:***

These options allow defining the colors, the safe area and grid of the **Work area:**

- *Workspace* – set a color for the area that surrounds the workspace.
- *Back Color* – set a background color for the workspace.
- *Back image* – you can select an image for background as well.
- *Work Area* – set a color for the borderline of the work area.
- *Safe Frame* – check it to view the safe area in the workspace. You can adjust its size using the H and V percentages to the right.
- *Safe Frame color* – choose the color for the safe area border.
- *View Grid/ Grid color* – check the box to see the grid and select its color. The grid is very useful when you size up the objects.
- *Snap to Grid* – check this box to align the objects in the project to the grid. Use the X and Y spin-boxes to define the distance between two neighboring points in the grid.
- *Max Undo Count* – specify the number of latest actions to be saved in the undo history. Please note that the higher number here means higher memory usage.

NOTE: There is no undo when deleting objects!

- *Show Objects Icons* – check this box to enable showing the objects icons in the upper left corner of each object in the work area.
- *Process Priority* – this slider will affect all other programs running on the system. Please, do not change the default setting unless advised.

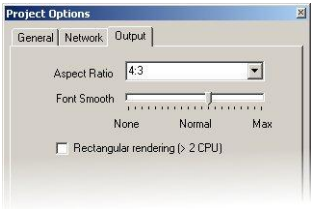


➢ ***Network Options***

These options are used for interaction between ***TitleBox*** and ***AirBox***.

- *TitleBox Channel ID* – ***TitleBox***'s channel ID; it corresponds to **AirBox➔ Settings ➔Modules ⇨ *Remote control*** [TitleBox Net Control] **➔*Configure*** [Channels].
- *Port* – select a network port.

➢ ***Output Options***



Here you can set the aspect ratio of the output. The default setting is [Square pixel]. The slider below determines the smoothness of the font characters. The bigger the value is, the smoother the font.

☑Rectangle rendering is recommended for more powerful systems. It changes the algorithm of graphics rendering for optimizing the performance. Do not use it on single CPU machines as it increases the CPU load!

IMPORTANT: In order to be able to control ***TitleBox*** through **Net Control output** events from ***AirBox***, you have to switch ***TitleBox*** in **Net Control** mode (***TitleBox Network*** menu➔ *Net Control*).

If you want to control a TitleBox project (and its separate objects) from ***AirBox***, you have to export it as a template (***TitleBox Network*** menu➔ *Export project as template*). The template folder will open automatically, so you do not have to browse for it. Just type a name and press ***Save***.

IV. CREATING OBJECTS

IV.1. Step By Step

All objects are created in a similar way:

1. Select the appropriate object button from the **Object Palette**.
2. Draw a rectangle in the **Preview Area** where you wish to place it.
3. A **Properties** dialog box will appear allowing fine-tuning of non-text objects (Still picture, Analog clock, Animation, Digital Clock, DirectShow media, Banner, etc.).
4. Pressing **OK** inserts the created object in the project.

You can edit the properties of text-containing objects either by using the special toolbars that appear when (double-) clicking the relevant object or the ***Properties*** buttons. For details, see the relevant sections below.

IV.2. Editing Objects

You can edit objects by invoking the object properties dialog box (for non-text objects) or using the special toolbars (for text objects). Do this by double-clicking on the object or by clicking on the ***Properties*** buttons.

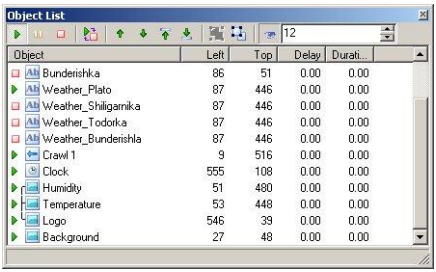
Animations and **Clocks** **cannot** be resized in ***TitleBox***, whereas **Pictures** and **Text templates** with graphics background can.

Crawls, Rolls and **Text Templates** without graphics background can be resized even while on-air. You can resize all dimensions of Text objects, Crawl's width and text size, and Roll's height and text size. However, resizing Crawl's height and Roll's width should be done while the objects are stopped.

IV.3. Deleting Objects

An object can be deleted by selecting it and clicking the ***Delete*** button from the **Main Toolbar**. It can also be deleted by using the **<Delete>** key on your keyboard.

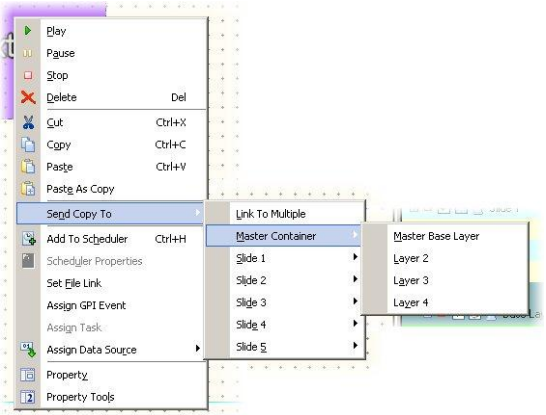
All objects can be deleted by clicking on the ***New Project*** button. A dialog box will appear, asking for confirmation.



IV.4. Object List

The **Object list** is intended for fast switching and reviewing of objects and their properties, such as **Left** and **Top** side positions, **Duration** and **Delay**. Here you can easily ***Group/Ungroup*** objects, change their ***Order*** (z-order) and control their playout and visibility status.

IV.5. Object Properties



The **Object Properties** dialog boxes look different according to the object type. All buttons have specific pictures and provide hints, when you slide the mouse pointer over them.

Right-clicking in any object invokes a drop-down menu.

The upper half of the menu contains the most common status and editing commands.

Send Copy To – this command allows you easily create copies of the currently selected object to all slides and layers in your project.

The **Add To Scheduler** item will open the ***TitleBox*** Scheduler where you can set the scheduling for the selected object.

If the object has already been added to the Scheduler, use the **Scheduler Properties** item to view the settings of all objects in the current project.

Set File Link – select this item to invoke a browse dialog to locate the .txt file to which you would like to link your object. Thus, your object's content will be updated at each save of the .txt file. An additional window will open to display all objects and their file links (if any) in the current project. You can set/change the file links from within the **Links** dialog. Just press the browse button to the far right of the relevant row to open a new browse dialog.

IV.5.1. Still Picture Properties

The **Picture Properties** dialog box looks like the one to the left.

The **Toolbar** allows you to ***Open*** and ***Save*** the image, ***Load*** and ***Invert*** the mask (the alpha channel), and ***Flip*** the image horizontally and/or vertically. If your picture does

not have an alpha channel, you can import one separately, by using the ***Open mask*** button .

The ***Draw Alpha Only*** button provides a new, interesting option. Push this button to create a Picture object over other objects in the project. Thus, you will overlay its alpha over all underlying objects. Try to make effects this way!

In the right part of the window, now you can adjust the object's *Contrast*, *Brightness* and change its *Color Balance*. You can choose to *Blur* the object and set the blur radius using the slider below.

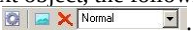
The *Anti-flicker* option is designed for smoothing the high-contrast computer graphics when overlaying it over video. Change the *Vertical Value* to prevent flickering of the graphics edges.

IV.5.2. Text Template Properties

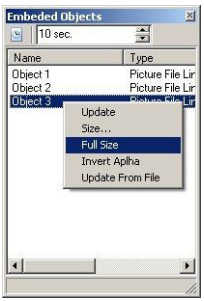
The Text Template objects, similar to rolls and crawls, have three groups of settings options:

Embedded objects and picture background

Embedded objects option is used to put some pictures or graphics (like line/bar graph, pie charts, etc.), created from other application (like *MS Office*) into the ***TitleBox*** object.

If you click once in a text object, the following object-specific toolbar appears in the last line of ***TitleBox***' toolbar: 

.



The first button opens the Embedded Objects list. This list refers to pictures/OLE objects, inserted in the text object (see the Property description below). You can set an auto refresh period using the arrows. Press the clock button in the upper left corner to activate this function. Thus, if you update the original file (picture/OLE), it will be refreshed automatically in your TitleBox project. In addition, clicking the right mouse button on an object in the list will invoke a context menu containing several useful options:

Update – OLE only;
Size… - you can set custom size to your embedded object;
Full size – display the original size of the object;
Invert Alpha – inverts object's alpha channel;
Update from file – for picture objects only.

If you want to open an image as a background, push the ***Open image*** button . Use the drop-down list to the right to fix its layout in the object (Normal, Stretch, Tile or Center).

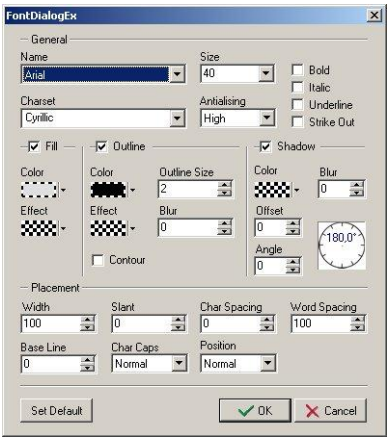
Delete the background image by pushing the button.

Text and Background Properties

You can edit the common text attributes (such as font selection, size, color, blur, shadow, etc.) and background attributes from another object-specific toolbar:

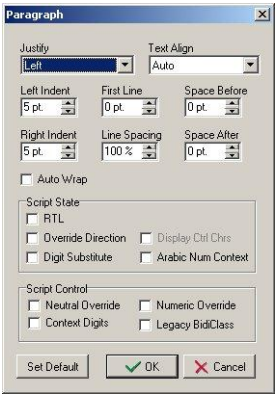
It appears in the last row of the ***TitleBox*** toolbar when you double-click a Text template object. Another way to invoke it is by pressing the Property button (in the second row of the toolbar) while a Text object is selected (single click).

Write the new texts directly in the object!



Pressing F invokes the **Font**-formatting window. Here you can find all the formatting options, as known from other windows-based editing applications.

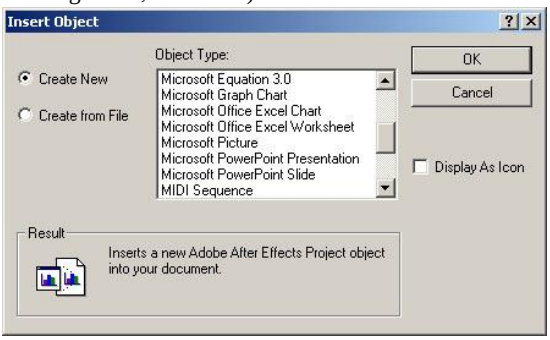
TitleBox supports all true type fonts.



Pressing P invokes the **Paragraph**-formatting dialog box, where you can set all paragraph-formatting options.

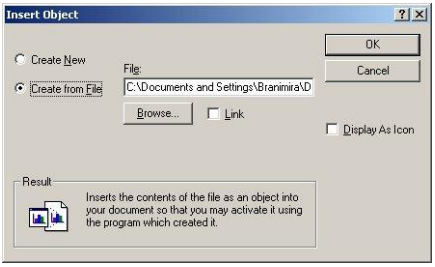
The two buttons to the right concern the background. Press to view a transparency background during editing in the preview area.

The following fields in the toolbar provide general text-formatting options (font, font size, bold, italics, underlined, text alignment, font color).



The last three buttons are related to inserting object links in the Text. Push the button to insert a still picture object link, and the button to insert OLE compatible objects. Use the drop-down list to fix their position in the Text object.

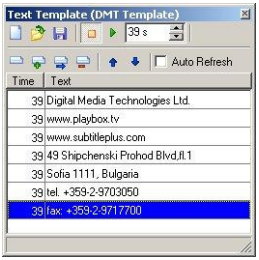
Import **OLE**-compatible objects using the button. The standard Windows **OLE** dialog box appears after pressing it.



If you choose ⊙*Create New*, the relevant application opens and you will be able to create the desired object. Any changes in the relevant **OLE** object will be visible in **TitleBox**, when saved (see the Text Property section above).

If you choose ⊙ *Create from File*, you will be prompted to browse for it. You can create a link, or display it as icon through checking the relevant box.

Text Template Property Tools



The property dialog box for text objects allows displaying different texts consequently, for specified periods in seconds. The different texts are shown as a list of texts (separate lines) in the **Text Template** window – press the button to view it.

You can prepare texts in advance or create them online. All buttons in this dialog provide hints:

New button – opens a new text template.

Open button – You can open a previously prepared text file, using the ***Open*** button . Each paragraph in the text appears as a separate line in the **Text Template** window.

Save button – saves the entered text as a file.

Stop button - stops displaying the text lines in the preview/output window.

Play button – starts displaying the text lines in the preview/output window.

Global Time spin-box – defines the frequency of changing the text lines. This is actually a "duration" applied for each new line added in the text template. If you need to specify a different duration for a particular line, use the spin-box in the text input dialog.

Edit item button – opens a dialog box for editing the selected text line.

(!) TIP: You can change the text by right-clicking on a text string as well.

Add item button – adds a text line. A dialog box opens for typing the text in.

Insert item button – inserts a text line. A dialog box opens for typing the text.

Delete item button – deletes the selected text line.

Moving up – moves the selected text line up.

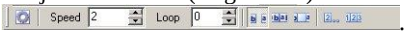
Moving down - moves the selected text line down.

☑*Auto refresh* box – automatically displays the changes made in the currently loaded text file, even during its play-out.

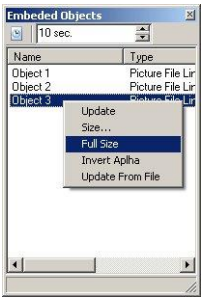
IV.5.3. Roll/Crawl Properties

There are three groups of properties for these objects: common text attributes; continuity mode and queue options; and dynamic speed properties. The first two are controlled through object-specific toolbars, while the third one can be set in the specially designated dialog box.

Continuity and Queue mode.

When a crawl/roll object is selected (single click) the following string appears in the last row of the toolbar: 

.



The gear-wheel button opens the Embedded Objects list. This list refers to pictures/OLE objects, inserted in the Crawl/Roll (see the common attributes description below). You can set an auto refresh period using the arrows. Press the clock button in the upper left corner to activate this function. Thus, if you update the original file (picture/OLE), it will be refreshed automatically in your TitleBox project. In addition, clicking the right mouse button on an object in the list will invoke a context menu containing several useful options:

Update – OLE only;
Size… - you can set custom size to your embedded object;
Full size – display the original size of the object;
Invert Alpha – inverts object's alpha channel;
Update from file – for picture objects only.

In the following two cells you can define the object's *Speed* and number of *Loop*s.

Speed field - controls the speed of dynamic objects, such as animations, crawls and rolls. Its value can be positive (right-to-left movement) or negative (left-to-right movement). If zero, the object is frozen.

NOTE: You can change the speed interactively at any moment, even when the object is running on-air.

If the value in the *Loop* field is [0], the object will be displayed endlessly.

The next three buttons refer to the object's background continuity mode. The first one means that background will be displayed only while text is running. The second one will "glue" the texts one after another, without any space in between. The third button will display the background continuously.

The last two buttons in this toolbar concern the Queuing functionality. After pressing one of these buttons, Title Box will "remember" all new changes (background colors, dimension, texts, and text colors) and will play them one after another, i.e. you will be able to make a queue of changes (loops). If none of them is pressed, ***TitleBox*** will show only the latest change. You can choose how to switch between changes (loops) while in play mode:

Use if you want to display the subsequent loops one by one, i.e. to leave some space between them (empty or with background color, depending on your settings – see the previous paragraph). In addition, use if you do not want any space between the successive loops in the object. ***TitleBox*** will generate one loop out of all loops in the queue.

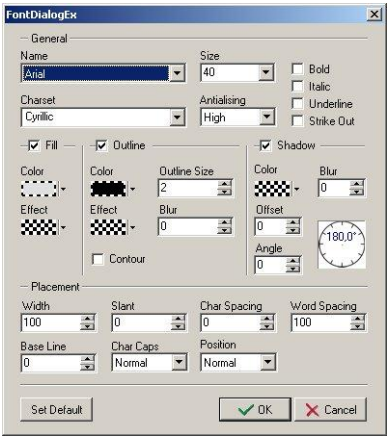
Text and Background Properties

You can edit the common text attributes (such as font selection, size, color, blur, shadow, etc.) and background attributes from another object-specific toolbar:

It appears in the last row of the ***TitleBox*** toolbar when you double-click a Roll/Crawl object. Another way to invoke it is by pressing the Property button (in the second row of the toolbar) while a Crawl/Roll object is selected (single click).

Write the new texts directly in the object!

NOTE: There is no possibility for inserting images as background, but still you can insert images and OLE objects in the Roll/Crawl objects.



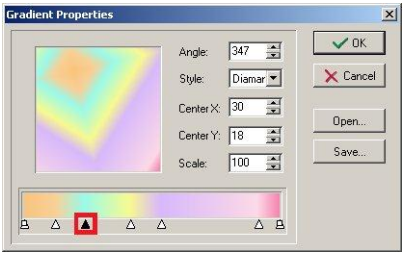
Pressing invokes the **Font**-formatting window. Here you can find all the formatting options, as known from other windows-based editing applications.

Use the *Fill Effect* drop-down list to modify gradient colors for your text:

In the Font Formatting dialog box, click the ***Fill Effect*** button.

Select **Gradient color** from the drop-down list. Here, you can have 255 levels of graded transparency and a vast variety of colors.

In the Gradient properties dialog, fix the desired settings:



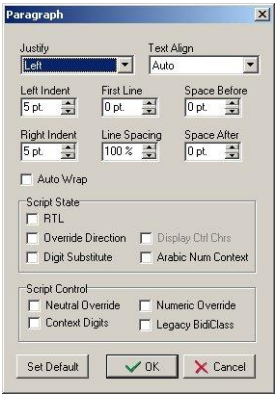
Choose a Style for the gradient from the drop-down list.

In the square field to the left, drag the cursor to change the gradient positioning.

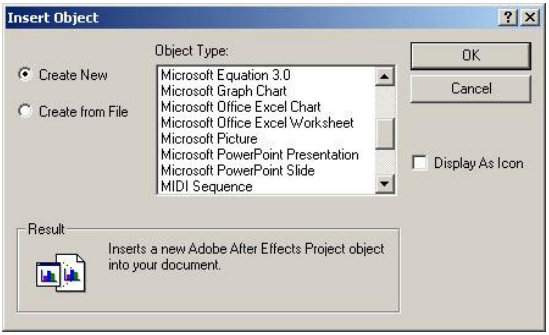
In the rectangle below, define the gradient colors and their initial points:

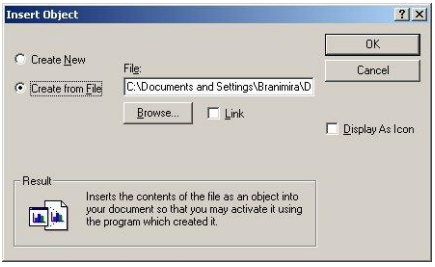
Place the plus-sign cursor in the desired position and click. A black triangle will appear in that position to mark the currently selected point. All other marks will become white.

Double-click on the black triangle to invoke the **Color setting** dialog.
Modify the color for this color-change point at your will and click OK.
Back in the Gradient properties dialog, you can change the position of the point by dragging it. Besides, you can add as many color-change points in the gradient as you like. Finally, click OK.



Pressing P invokes the **Paragraph**-formatting dialog box, where you can set all paragraph-formatting options.
The two buttons to the right concern the background. Press to view a transparency background during editing in the preview area.
The following fields in the toolbar provide general text-formatting options (font, font size, bold, italics, underlined, text alignment, font color).
The last three buttons are related to inserting object links in the Roll/Crawl. Push the button to insert a still picture object link, and the button to insert OLE compatible objects. Use the drop-down list to fix their position in the Roll/Crawl object.
Import **OLE**-compatible objects using the button. The standard Windows **OLE** dialog box appears after pressing it:
If you choose ⊙*Create New*, the relevant application opens and you will be able to create the desired object. Any changes in the relevant **OLE** object will be visible in **TitleBox**, when saved (see the Text Template Properties section above).





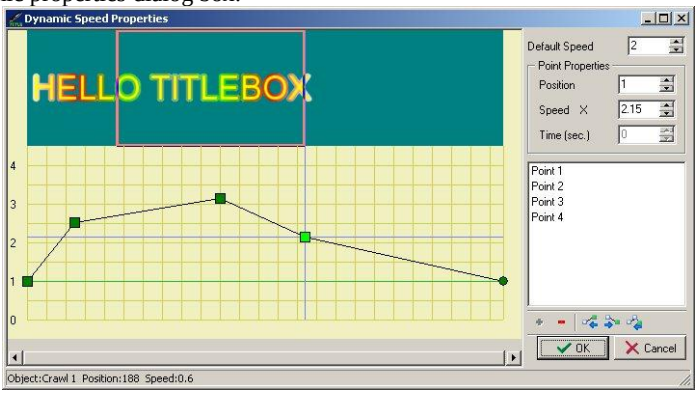
If you choose ⊙ *Create from File*, you will be prompted to browse for it. You can create a link, or display it as icon through checking the relevant box.

(!) TIP: When a Roll, Crawl or Text object is linked to a text file, you can insert a still picture in the text – the image will be displayed among the characters, according to the position of its script in the text. Write the following command in the text file: **<BITMAP>[file path of the image file]</BITMAP>**. Make sure that BITMAP is written in capital letters. Here is an example:
1) Save your image. Let us assume the file name is "logo.bmp" located on D:\
2) Enter the text in a .txt file, for example "Hello, this is a test project".
3) Continue writing the following: <BITMAP>D:\logo.jpg</BITMAP>.
Thus, your .txt file will read:
Hello, this is a test project <BITMAP>D:\logo.jpg</BITMAP>.
It could also be **Hello, this <BITMAP>D:\logo.jpg</BITMAP> is a test project**, or **Hello, this is a <BITMAP>D:\logo.jpg</BITMAP> test project**, etc.
Every time you edit the text and save the changes, the text on the output will be refreshed. If you want to change the picture, change the file name and location part in the script (here: **D:\logo.jpg**).
If you want to insert an animated GIF file in the text, write <MOVIE> instead of <BITMAP>. For example:
Hello, this is a test project <MOVIE>D:\smilie.gif</MOVIE>.

NOTE: There is no spell-checker implemented in ***TitleBox*** text objects (roll, crawl and text template). You can use some external application for spell-checking and then just copy&paste the text into ***TitleBox*** object.

Dynamic Speed Properties

Pushing the Property tools button while a Roll/Crawl object is selected will open the Dynamic properties dialog box:



This property dialog box allows you to specify different speeds of **Roll**'s and **Crawl'**s movement.

The movement is represented graphically and you can define speed for each point of the graphics. The horizontal axis of the graphics represents the position of the **Crawl/Roll** on the screen. The vertical axis represents the speed multiplier (0; 1; 2; etc.) to the default speed, which is set in the main screen (*see* **Toolbar**). The Zero value means ***0x***default speed, i.e. the object does not move; one means ***1x***default speed, i.e. the object moves with the default speed; two means ***2x***default speed, i.e. the object moves twice faster than the default speed, etc.

On the top of the graphics, you can see the object (**Roll/Crawl)** text. By moving the mouse pointer over the grid (the blue lines) or using the arrow keys, you can select the position in the text, where you'd like to change the speed. The text section which will be displayed at the selected "speed change" point is enclosed in a frame.

By default, the first point is in the beginning of the graphics. A new point is added by pressing the ***Add*** button or by double-clicking in the yellow-squared area.

When you select a position to change its speed, a green point will appear at the grid and its properties (speed and position) will be displayed in the *Point Properties* area to the right. The position's coordinates are also displayed in the status bar.

If you set a speed "0" for any position, then you will have to define a delay period. This is the period (in seconds) during which the object will remain stopped. The wait-time appears in a red square under the zero-point.

All points are shown in the **Point list** to the right of the graphics. Their names are [Point #], where the # stands for the sequential number of the point.

Align buttons allow aligning the selected point toward the previous, the next or the first point in the graphics.

The *Default speed* field shows the default speed, as it was defined in the main ***TitleBox*** window (*see* **Toolbar**).

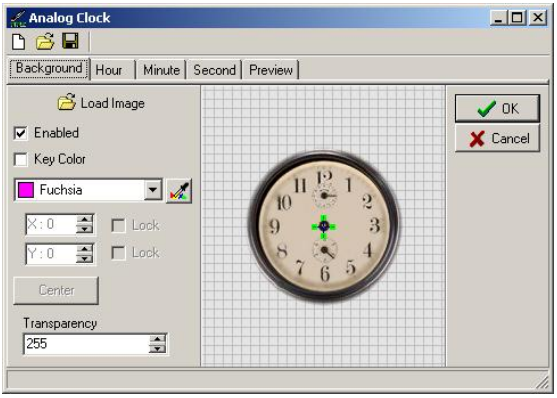
In the *Point Properties* area are shown the properties of the selected point: speed**,** position and time (for zero-speed points only).

Point list - shows the list of all "speed change" points in the object.

Add button – adds a new "speed change" point in the object's graphics.

Delete button – deletes the selected "speed change" point in the object's graphics.

IV.5.4. Analog Clock Properties



The **Analog Clock** properties dialog box looks like the one to the right.

New button – opens an empty clock property object.
Open button – loads a previously created clock object (***.clc**).
Save button – saves the current clock image into a file **(*.clc).**

There are different pages for each clock layer – background (clock plate), hour, minute and second hands, as well as a preview page of the overall clock layout.

All pages have identical structure: a *settings area* and a *preview area*.

Settings:

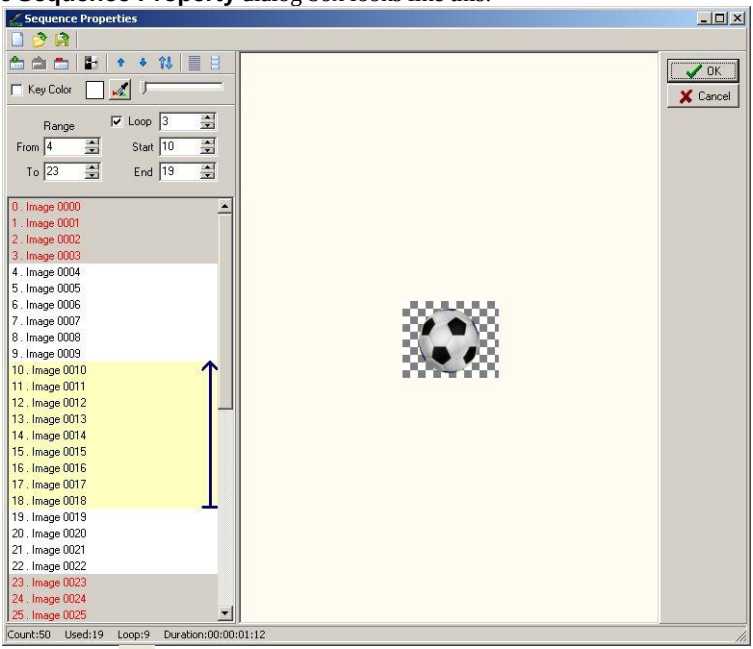
- ***Load Image*** – loads the relevant image (for the background, hour, minute or second hands).
- ☑/☐ *Enable* – enables/prohibits displaying the relevant element.
- ☑/☐ *Key Color* **–** key color for the image. If the image does not have a mask, you can select the key color.
- ☑ *Lock position* – locks the **X/Y** position of the image.
- *Transparency* **–** set the image transparency

Preview area – It is used for previewing the relevant clock element.

(!) TIP: To achieve most satisfactory result, use a picture-editing application to create four square images with equal dimensions. Save them in separate files – one per each element of the clock (background, hour hand, minute hand, and second hand). Be sure to place the hands' ends on the exact centers of the relevant images. Bear in mind that the clock object will be the same size as the image in the file. It cannot be resized!

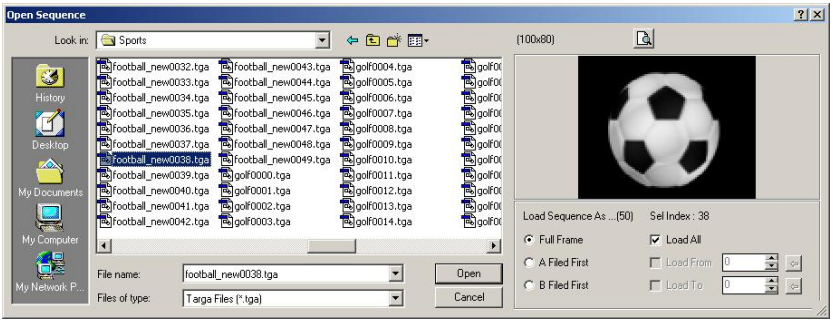
IV.5.5. Animation Properties

The **Sequence Property** dialog box looks like this:



- ***New*** button - allows creating a new sequence.

- ***Open*** button - loads a file (***.seq**) or a sequence of files (***.jpg**; ***.jpeg**; ***.tga**; ***.bmp**) for an animated logo:



Besides, you can load animated **.gif* files. If you use the ***Add*** button, TitleBox will load only the first picture of the file. If you use the ***Open*** button, TitleBox will load the entire range of *.gif images.

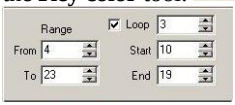
NOTE: We do not recommend using *.gif sequences for high quality applications, because they have only 256 indexed colors and do not have 8-bit transparency (just one color can be either entirely transparent or entirely solid).

If you want to load only a part of the files, enter the numbers of the first and of the last file of the sequence in the *Load from* and *Load to* fields respectively. Use the blue arrows to the right to enter the number of the currently selected file in the relevant field. If you are loading an interlaced animation, specify the first field – *A* or *B*.

Click ***Open***. The sequence is displayed in the animation property window. The currently selected file from the sequence is shown in the preview area to the right.

- ***Export*** button - saves the current sequence as a file (***.seq**).
- ***Add*** button - adds a new file to the sequence.
- ***Delete*** button - deletes a selected file from the sequence.
- ***Insert*** button - inserts a file into the sequence.
- ***Invert alpha*** button - inverts the alpha channel of the selected file.
- ***Move Up/Down*** buttons – moves the selected file up/down the list.
- ***Reverse*** button - reverses the files' order
- ***View*** buttons are used for changing the sequence files' view – **list** or **thumbnail** mode.

If the animation files do not have an alpha channel, you can select a key color by using the **Key color** tool:



Underneath the key-color setting kit are situated the Range- and Loop-related boxes. Select the Range of frames that will be used in the sequence – enter the values you wish in the *From* and *To* fields. The names of the frames that are out of this range will become red, and their background – gray. The background of the working range will remain white. If you want to loop between two frames in this working range fill-in the *Start* and *End* fields, and the number of loops. The frames included in the loop will be highlighted in pale yellow. A blue arrow to the right of them will mark the final and the initial frame of the loop.

After adding your animation to the preview area, an additional toolbar becomes active. To see it, click on the animation object:

Select the desired *Speed* and how many times you want to *Loop* the animation.

This taskbar duplicates the range and loop setting in the Properties dialog box. You can change those here as well: choose a *Range* of animation frames to be displayed or activate/deactivate the *Loop* option (it enables leader-loop-trailer functionality). Check☑ it and select the range of frames within which you want to loop. If this option is selected, animation will start from the beginning, run to the *End* frame and loop between *Start* and *End* frames. If you want the animation to run as regular again, just uncheck ☐ the *Loop* option.

NOTE: The *From* and *Start* fields represent the first frame that will be shown, and the *To* and *End* fields represent the first frame that will NOT be shown. Thus, the difference between the *To* and *From* (and between the *End* and *Start*) values will equal the number of frames that will be shown in your sequence. These numbers will be displayed in the status bar of the sequence properties dialog box: [Count] stands for the total number of frames in the list; [Used] stands for the number of frames in the working Range; and [Loop] stands for the number of frames that will be looped.

IMPORTANT! You must have enough uninterrupted free RAM to load a TGA sequence in ***TitleBox***. The minimum free RAM needed for loading a TGA animation is calculated after the following formula: (Animation_Width multiplied by Animation_Height, multiplied by 4) multiplied by the Animation_Frame_Count.

To save or open a project containing such an animation, you will have to multiply the needed RAM by 2.

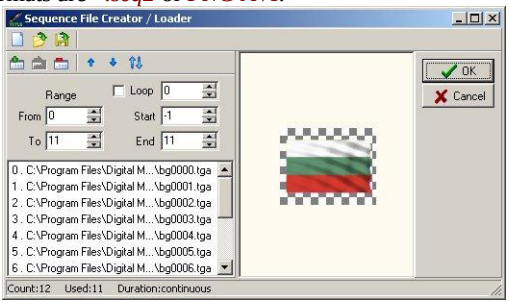
Thus, the minimum free uninterrupted RAM for saving/opening a 100-frame animation with 300x200 frame size will be:

(300 * 200 * 4) * 100 * 2 = 48,000,000 bytes = ~45.77 MB.

TIP (!) In order to reduce these requirements, you could export your longer animations to sequence files using the Create Animation File object (see below).

IV.5.6. Create Animation File

This object was created to avoid the real-time rendering of sequences, thus reducing the system resources load during playout. We recommend using it for big-size animations with numerous frames. The resulting file formats are **.seq2* or *PNG AVI*.



The properties of this object appear in the dialog to the right. It is similar to the Animation properties dialog and most of the options are the same.

To load an already existing sequence file, click in the ***Open*** sequence button.

To create a new sequence file, click in the ***Add Images*** button and browse for them. In the Open sequence dialog, select the images to load and click ***Open***.

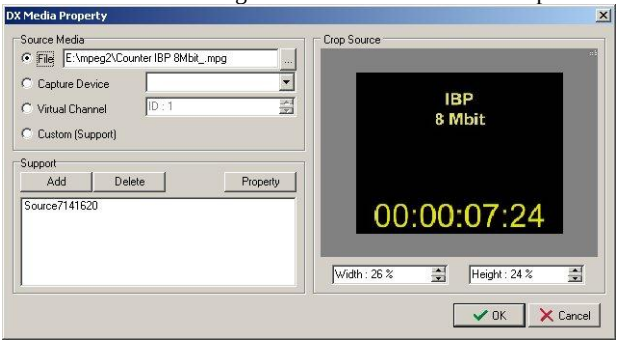
You can use the arrows to change the images' order.

In the *Range* spin-boxes, specify which images should be included in the sequence. All of them are included by default.

Once you have loaded all the frames you want to include in the sequence, press the ***Export Sequence*** button and save the file.

IV.5.7. Direct Show Media Properties

TitleBox allows inserting all kinds of Direct-Show compatible media.



First, you have to specify the source media:

The ⦿*File* string contains the file path or URL to play in the object. Press the ***Load*** button to the right to browse for it.

NOTE: You should specify the URL of a live network stream, not a link to a file.

The ⦿*Capture Device* drop-down list contains all direct-show compatible capture devices installed in the PC. Select the one to use from the drop-down list.

The ⦿*Virtual Channel* is a DMT standard that helps external programs (as AirBox, Graph Edit, or any Direct Show-compatible player) to transfer video information, which to be inserted in the object. This option is still under development.

⦿*Custom (Support)* – this is an advanced option. Select it to choose the filters to use in this object on your own. You can add filters to the graph by clicking the ***Add*** button. A list of all available filters will open for you to choose. To view the properties of a filter in the graph, select its line in the list and press ***Properties***.

You can crop the image Width and Height using the relevant spin boxes under the preview window.

When a direct show object is selected in the ***TitleBox*** preview area, an object-specific toolbar appears under the standard ones:

The ***Properties*** button opens a list of all filters used in the current graph.

Check ☑ *Alpha* to use the video's alpha channel. You can adjust it using the percentage spin box to the right.

In this toolbar, there are two drop-down lists: one to select the display *Mode* (Stretch or Center), and another one for the scaling quality. In it, you can select the picture re-scaling algorithm. The faster the mode, the lower CPU usage.

Enter the loop number to repeat the video as many times, as you want. Loop = [0] means that the video will be repeated incessantly; Loop = [1] means that the video will be played once and so on.

Any loop number different from zero represents how many times the object will be looped.

☑*Keep Aspect* – check this box to preserve the aspect ratio when resizing the object.

The next two spin-boxes control the image [X] and [Y] offset in relation to the object's centre. Use them while in [Center] mode, to move the video vertically or horizontally within the object boundaries.

When in [Center] mode, you can the use alpha matte to fill-in the space between the edges of the video and the object's borders. You can select its *Color* from the palette to the left of the ☑*Use Alpha* check box.

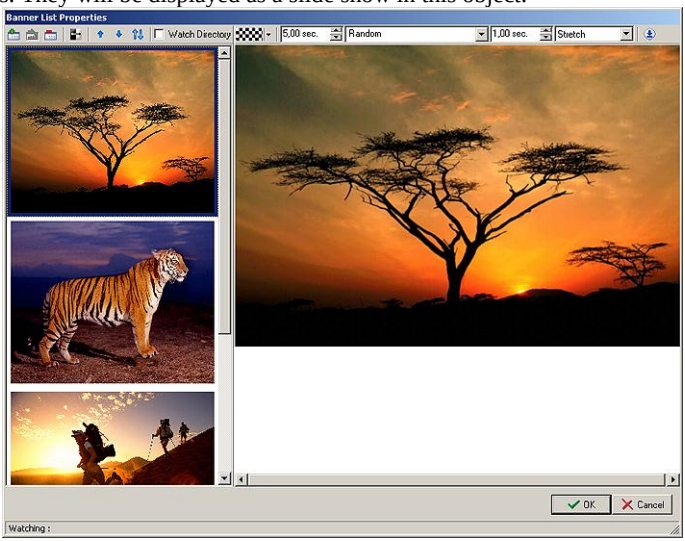
In the end of the toolbar are situated the two sound controls. The *Audio Delay* spin-box allows adjusting the A/V sync of the object. To the right of it you can find the *Volume* control.

NOTE: The audio of your DirectShow objects will be output on the Default Audio device set in **Control Panel ➔ Sound and Audio Devices ⇨ *Audio***.

WARNING! As the playout of direct show media objects is carried out by third party filters, we cannot guarantee the A/V sync of these objects.

IV.5.8. Banner Properties

Pushing the ***Insert Banner*** button invokes a dialog box for you to create a list of picture files. They will be displayed as a slide show in this object:



Use the well-known buttons to add, insert and delete pictures from the list; invert their alpha and move them up and down, and reverse their order.

When you select a picture from the gallery to the right, it is displayed in the preview window to the left. The buttons above it are relevant to the currently selected picture. By pushing the button, you can choose a background color for it. Specify how long it will be displayed and the transition pattern and duration, as well as the picture's layout (in the drop-down list in the upper right corner).

If you would like to set the same parameters for all pictures included in the banner, just press the ***Set As Default*** button. Thus, the settings you have already made will affect all newly inserted images in this object.

The *Watch Directory* option is a relatively new feature developed to your convenience. When you check this option, a browser opens automatically for you to specify a folder that contains picture files. Opening it will activate a kind of slide show in the banner and there will be no need to open all pictures from this folder one by one.

IV.5.9. Chat note objects

Another object in the object palette is the **Chat note** object. It can be considered as a **Text template** object, but when you enter a text in it, text is always shown as a new line coming from the bottom and the old text is rolling to the top. This kind of objects is suitable for use together with some **SMS** applications. You can also insert a file link (**Project➔Plugins➔**File Link) to a text and/or a picture file. The chat note will be updated at each save of the relevant file. The object's properties are controlled as those of the other objects (See the Text template properties section).

When you click this object once, an additional object-specific toolbar appears underneath the standard ones. Specify the desired speed for changing the text lines in the chat note:

IV.5.10. Sound objects

The sound objects are actually links to DirectShow-compatible sound files. After drawing the object rectangle in the work area, a browse dialog opens for you to locate the sound file. When a sound object is selected, the following toolbar appears under the standard toolbars in ***TitleBox***:

In it, you can specify a number of loops for this sound and change its appearance in the work area from the color palette.

The sound file name is displayed to the right. If you want to change the sound or the file path, double-click in the object to invoke the browse dialog.

(!) TIP: You could apply transition effects to your sound objects: an *In* and *Out* transition toolbar is situated above the object-specific toolbar. It contains two drop-down lists of transition effects and two spin-boxes for the *In* and *Out* transition duration.

Select [Cross Fade] from the *In* drop-down list and enter some figure in the spin-box next to it. Thus, the sound volume will increase gradually according to the time set – the more time, the slower increase.

Select [Cross Fade] from the *Out* drop-down list and enter a figure in the spin-box to the right of it. Thus, the sound volume will decrease gradually at the end of the sound file.

WARNING! Be careful when moving ***TitleBox*** projects containing sound files! If the sound file is not available at the new location (its file path is not the same as the one saved in the project), the sound object will not be executed.

NOTE: The sound objects are quite heavy. Inserting more than three sound objects per project could slow down the rendering of ***TitleBox*** objects.

NOTE: This object's sound will be output through the Default Audio Device (set in Windows **Control Panel ➔ Sounds and Audio Devices** ⇨ ***Audio*** tab).

IV.5.11. Digital Clock Properties

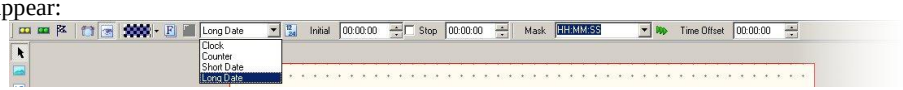
The default **Digital Clock** object looks like the one to the right.

It displays the current system time. You can change it by using the *Time Offset* spin-box (*see the bottom of this page*).

A text-formatting toolbar appears at double-clicking in the digital clock object:

Use it to edit its common text attributes (such as font, size, color, blur, shadow, etc.) and background attributes. This toolbar has already been described in the Text template properties section above.

More options will become available via an additional toolbar, which appears beneath the standard ones. If you do not see it, just click on the **Digital clock** object and it will appear:



You can select among four modes for the **Digital clock** – to run it as a clock or a counter, or to display Long or Short Date.

While in clock mode, it runs as an ordinary digital clock. You can choose the time format through the ***12/24 hours clock*** button. The twelve-hour time format is active when the button is pressed, and the twenty-four hours format – when it is not pressed.

The background color is changeable through the Palette button.

Select a mask for the clock in the *Mask* box. Update the mask using the green arrows button. If you have changed the mask, you will have to press this button to show it on the display.

In the counter mode, some additional options are available – select the type of your counter – Countdown or Regular through the button. If pushed, the counter will count from an *Initial* time to a *Stop* time, if *Stop* checked. If not pushed, counter will count up. After selecting the counter type, the *Initial* and *Stop* times and a *Mask*, you are ready to run your *counter*. Run your project and show your object using the well-known **Play** button. Then ***Prepare*** your *counter* and ***Start*** it.

After pressing the ***Prepare*** button your *counter* sets to *Initial* time and waits for a ***Start*** command. Stop the counter with the button. Pushing the ***Intermediate*** button will "freeze" the *counter*. During freeze, the *counter* is running in the background, but you see a still frame displaying the time when the ***Intermediate*** button was pressed. When you push the *Intermediate* button once more, the *counter* starts showing current time again.

Two buttons are active for the *clock* and *counter* modes – ***Properties*** and ***Visible***. Pressing ***Properties*** opens the font formatting dialog. ***Visible*** determines if the *clock*/*counter* will be visible on the monitor or not. It does not stop the *clock*/*counter*, but just hides/shows it.

Time Offset – This spin-box allows creating digital clocks for different time zones.

In Date mode, the object will display the system date instead of system time. There are two date formats: Long Date and Short Date. Their appearance depends on the regional settings of your TitleBox server. You can change them in Windows **Control Panel ➔ Regional and Language Options ➔ *Regional Options***. After pressing the ***Customize*** button, go to the ***Date*** tab. In it, you can check your current system date settings and change them at your will.

IV.5.12. Flash objects

Flash objects, similar to sound objects, are actually links to flash files. To create a flash object, press the flash button in the **Object palette** and draw a rectangle. Two windows will open as soon as you release the mouse button: a standard browse dialog to locate the flash file and an interactive properties window. The name of the Flash object is displayed in the caption of the properties window.

When a flash object is selected in the work area, the following toolbar appears underneath the standard TitleBox toolbars:

It provides the following options:

Press the ***Pointer*** button to show your mouse pointer on the output. Thus, the operator's actions will be shown on the monitor.

Use the ***Invert*** button to change the color of the pointer that is displayed on the output.

Select the way your flash should display from the first drop-down list to the left. It contains all standard flash settings. The first drop-down list contains options for image scaling – select it according to your needs and the system capabilities of your PC.

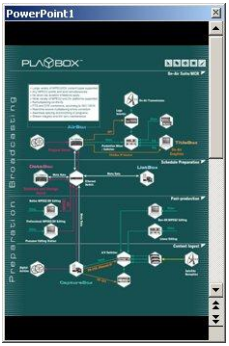
Use the second drop-down list to set the quality of your flash image. Practically this is an anti-aliasing setting of the flash object.

You could select a color from the last drop-down list to the right and make it transparent by checking the ☑*Use Key Color* box.

The last check-box to the right is related to aspect-ratio incompatibility. If your flash is 4:3, and the output (in **Project** menu ➔**Options**⇨***Output***) is set to some other aspect

ratio (such as 16:9 for example), checking this box will ensure the correct displaying of your flashes in the working area.
NOTE: You must have a Flash Player installed on your PC in order to play these objects.

IV.5.13. Power Point Objects



Now you can insert Power Point presentations in your ***TitleBox*** projects. Just pick the Power Point from the object palette and draw a rectangle in the work area. Then browse for the file location. You can change the file later by double-clicking in the Power Point object or by pushing the ***Properties*** button in the toolbar.

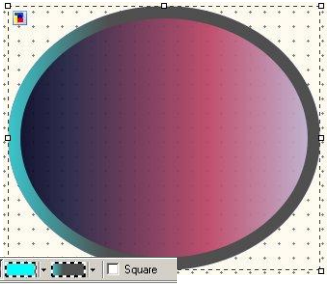
If you Right-click in a Power Point object or push the ***Properties 2*** button, the power point properties window will open. It is interactive and allows you to control your slide shows.

The name of the currently selected object is written in the window caption.

WARNING! Do not minimize the ***TitleBox*** window while displaying a power point presentation – this will hide it from the output!

NOTE: You must have a full Power Point version installed on the ***TitleBox*** PC in order to run these objects.

IV.5.14. Primary Shapes



You can create your own mattes for the text objects directly in the ***TitleBox*** work area. They are true-color with 256-level transparency.

Press the ***Create Shape*** button in the object palette and draw a rectangle in the work area. By default, an oval shape will appear in it and the object-specific toolbar will appear under the standard ones:

It provides a wide variety of editing options. The drop-down list of available shapes is situated to the far left. The color palette next to it is designated for the background color. You can select it from the available ones, or create it on your own.

To the right of it there is another palette for the fill effects – you can choose between None, Gradient color, or Texture Fill.

The fill and outline effects are same as in text objects, so please check the Roll/Crawl properties section in the manual above.

NOTE: The background color serves as an alpha channel to the fill-effect. The background color (and transparency) will be mixed with the fill-color and its transparency.

Use the *Radius* spin-box to enlarge your objects or to make them smaller.

The following spin-box determines the *Outline* width. The color palettes next to it are for the background color of the outline and its fill effects respectively. Similar to the shape background and fill, these will be mixed as well.

The *Square* check box in the far right of this toolbar fixes the aspect ratio of the shape object. It will change your object to fit a square and will keep this shape when you resize it.

WARNING! You will not be able to revert to your previous shape after checking the *Square* check box.

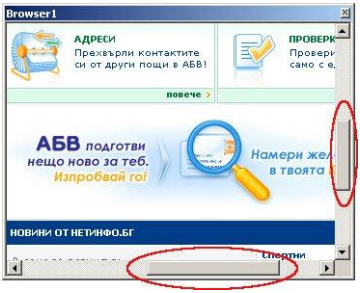
IV.5.15. Browser Properties

The browser object uses Internet Explorer to display web pages as graphics on the screen.

As soon as you release the mouse key after drawing the object's rectangle, the Open page dialog will appear in the work area. Type in the *URL* you would like to browse or paste it from the clipboard.

Once you click ***OK***, the object-specific toolbar will open under the standard toolbars:

In it, you can type another *URL* to be loaded in the browser object.

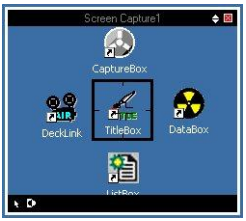


The **Properties 2** window will open together with the Browser Open Dialog. In it, you can see the currently loaded web page. If the object's dimensions are smaller than the page itself, you can use the scrolls to select which part of the page to be shown on screen.

IMPORTANT: If a link in the webpage is set to open in a new window, you will not be able to open it in the same browser object. There is no practical way to grasp such a window into the same object.

WARNING! Do not minimize ***TitleBox*** while using browser objects! This will make the objects disappear off the screen!

IV.5.16. Screen Capture object



This object will allow you show some parts of your desktop on the screen.

The window to the right will appear as soon as you create the screen capture object. Its size is the same as of the rectangle you drew in the work area. Drag it to the area you would like to show on the screen.

In the upper right corner, there is a two-sided arrow button. Use it to minimize/maximize the main ***TitleBox*** window, but leave the Screen Capture window ON. Please note that if you use the minimize/maximize buttons in the main ***TitleBox*** window; the screen capture dialog will be affected as well.

In the lower left corner, you can find two other buttons that control the mouse pointer. The first one is for showing/hiding it from the screen. The second button will invert the cursor color. Thus, if the background of your desktop is light, you can turn the cursor black, so it will be easier seen on the screen.

When a screen capture object is selected in the work area, the object-specific tool bar will appear under the regular toolbars:

The first two buttons in it duplicate the ones for cursor control in the lower left corner of the Screen Capture window. To the right is the *Antialising* check box. Use it to make the sharp edges smoother, thus avoiding possible aliasing effects on the output.

NOTE: It is not possible to capture overlay video in this object.

IV.5.17. Chat Line

Chat line objects appear in the work area as the one below.

Chat lines, like Chat notes, are developed to display text messages, coming from sms service applications. Chat line objects should be linked to text files where third party applications save the newly-received messages. Unlike chat notes, the messages in chat lines are moving constantly, even if there are no new messages arriving in the linked text file. When a new message appears there, it will be displayed during the next queue rotation.

The Chat line toolbar contains the following settings:

F - use this button to format the chat line font.

- paragraph formatting allows you to change the alignment, spacing, word wrap, and other properties of the currently selected paragraph.

You can change the speed of the text through the *Speed* spin-box: the higher value, the faster will move the text. If you want to change the direction, type a minus [-] in front the speed value.

The *Queue Length* spin-box is used to define the number of latest messages to be displayed if no new messages appear in the linked text file.

IV.5.18. Chat Roll

The function of this object is the same, as it is with the Chat Line and Chat Notes (displaying messages coming from third party applications to a linked text file). The only difference is that it displays the saved text as Roll ticker.

To create a Chat roll object, Press the button in the object palette. Then, right click in the object to set the File link.

The object-specific toolbar is identical to the Chat lines. Please check the Chat line section above for details.

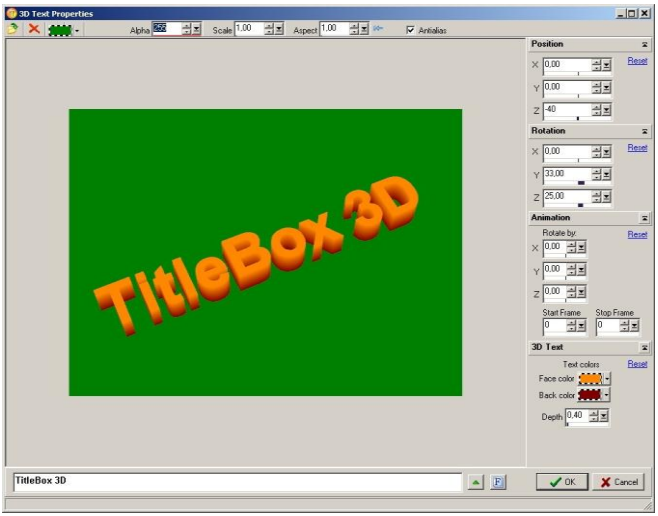
IV.6. TitleBox 3D

TitleBox 3D is a variety of TitleBox, which supports 3D objects.
Activating TitleBox 3D is a matter of separate license.

There are three 3D objects available in TtileBox – 3D Text, 3D Picture and 3D Mesh.

IV.6.1. 3D Text

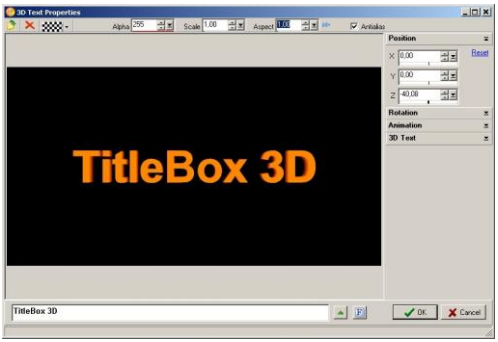
This object allows creating a rotated and animated text.
Select the object and draw a rectangle into the TitleBox work area. The following properties window will appear:



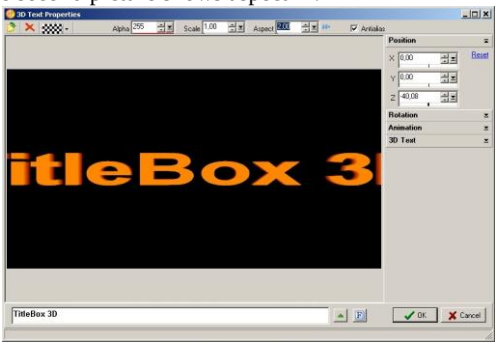
At the top of the window, there are three spin-boxes – ***Alpha, Scale*** and ***Aspect*** for changing respectively transparency of the object; scaling of the object and aspect. The aspect here is a correlation between horizontal (X) and vertical (Y) size of the object as it is draw in TitleBox. By default the aspect is one.

It is accepted that the Y-size of the drawn area is equal to the Y-size of the selected font. This means that when you change the aspect, Y size doesn't change and only the X size is changed.

See the example below. The first picture shows Aspect=1.



The second picture shows aspect=2:



Check ***Antialias*** check-box at the top of property's window to use anti-aliasing engine for the object.

At the top of the **Properties** window, there are three more icons - ***Load Texture***, ***Clear Texture and Background color.***

Background color is used for selecting the background color

Load Texture is used if you want to put a specific graphic as a texture of the text. See the example.

Clear texture is used if you want to delete the texture

At the right side of the Properties window, there are settings for ***Position***, ***Rotation, Animation and 3D Text properties***

At the right of each Properties area, there is a Reset button. Press it to reset all changed values.

The ***Position*** of the object can be defined according to the ***X, Y*** and ***Z*** coordination system. The Z position corresponds to the viewer (camera) distance to the object. If you want to bring the object closer to the viewer, you have to decrease the Z value. If you want to take away the object from the viewer, you have to increase the Z value.

Using the ***Rotation*** parameters enables you to rotate the objects around X, Y and Z axes.

If you need to express a movement of the text, you can define ***Animation*** properties. Here, you have to define a rotation by X, Y and Z axes, where the rotation is defined in degrees per frame.

For example, if you define *Rotate by X*= 1, this means that the rotation by X is one degree per 1 frame. If you define *Rotated by X*= 2, this means that the rotation by X is two degrees per 1 frame

Start frame and *Stop frame* fields from Animation properties are used if you want to start and stop the rotation of the object at a specific frame. In these fields, you have to enter a number of frames for starting and stopping the animation.

For example, if you have defined *Rotate by* X=1 and you want to stop the object at 180º , than you have to define *stop frame=start frame*+180.

If *Rotate by X*=2, than *stop frame=start frame*+90

If you want the animation to start immediately at object play, the *Start frame* field must be zero. If you want the animation to start later than object play (with some delay), you have to enter the needed number of frames for delay into the *Start Frame* field.

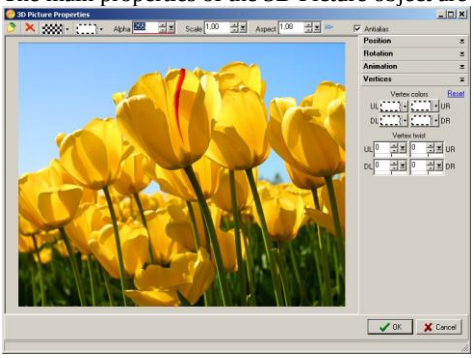
3D Text properties give you possibility to change the text color (front and back sides) and text depth.

In the bottom of the **Properties** window, there is area for entering the text itself and set the ***Font parameters*** for the text.

Press the green arrow button to enter the text into the object.

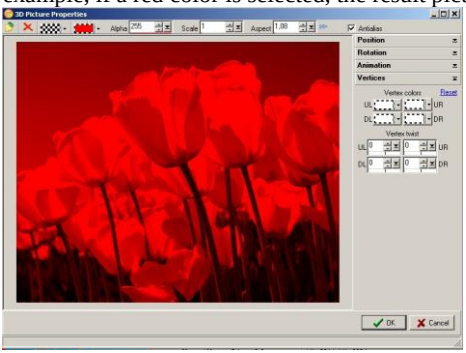
IV.6.2. 3D Picture

The main properties of the 3D Picture object are the same as these of 3D Text object.



There are two additional properties – ***Blend color*** and ***Vertices***:

Into ***Blend color*** box, you can select a color for blending with the picture object. For example, if a red color is selected, the result picture will be as below:



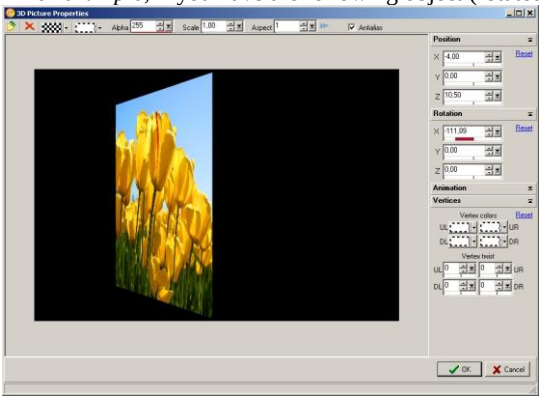
Vertices describe four vertex of the object – *UpperLeft* (UL), *UpperRight* (UR), *DownLeft* (DL) and *DownRight* (DR).
Tip: **Vertex** is a special kind of point which describes the corners of the geometric shapes. **Vertices** are commonly used in computer graphics to define the corners of surfaces in 3D models

Vertex parameters are ***Vertex twist*** and ***Vertex color***

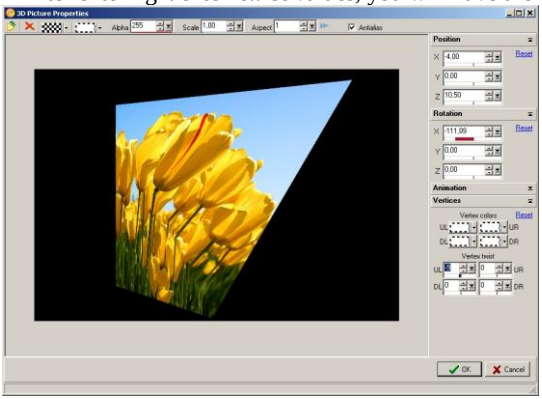
Vertex twist describes the shift of the object's corners position towards the Z position of the object.

This way, you can create new shape of your object.

For example, if you have the following object (rotated towards X axis):



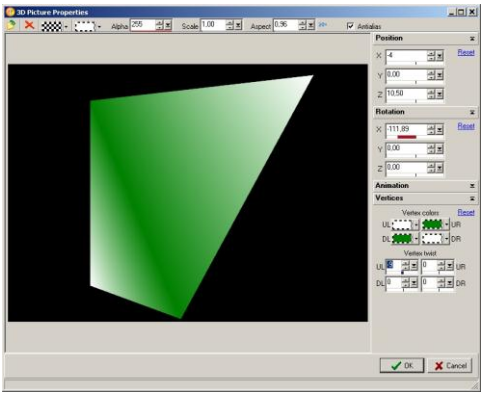
After entering **Vertex twist** values, you will have the following object:



If you want to save only the new shape, without the picture, you can delete the picture by pressing Delete button .

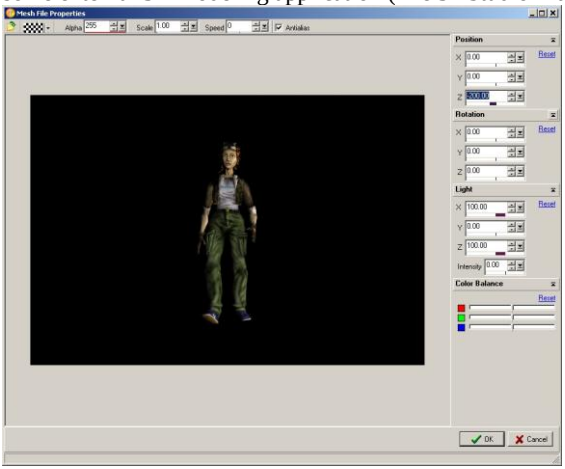
Than you can define the ***Vertex colors*** for UpperLeft (UL), UpperRight (UR), DownLeft (DL) and DownRight (DR) corners of the objects.

These colors will be showed instead of the picture, like in the next example:


3D Picture Properties
Alpha 255
Scale 1.00
Aspect 0.96
Antialias
Position
X -4
Y 0.00
Z 10.50
Reset
Rotation
X 111.89
Y 0.00
Z 0.00
Reset
Animation
Vertices
Vertex colors
Reset
UL
UR
DL
DR
Vertex twist
UL 0
UR 0
DL 0
DR 0
OK
Cancel

IV.6.3. 3D Mesh

This object allows you to insert a Direct3D model (*.x file) prepared previously with some external 3D modeling application (like 3DStudio Max, Maya, Blender, etc.).



Important: You have to export your 3D model into *.x file, in order to can open it in TitleBox.

Note: To be sure that your *.x file is correctly created, you can check and preview it first with DirectX Viewer.
If DirectX Viewer opens and plays your file, than TitleBox will play it too.
If DirectX Viewer cannot open or play your file, than you have to re-create it.

Select the 3D Mesh object and draw a rectangle in the ***TitleBox*** working area. The Properties window will open.

Press the **Open .X file** button to select a *.x file.
You can change ***Background, Alpha*** and ***Scaling*** of the file, as it is already described for previous 3D Text object.

There is an additional **Speed** spin-box for changing the speed of motion of the 3D scene. Leave the Zero (0) value here, if you don't want to change the original speed. If you want to speed up the scene, increase the value to be bigger than zero (+20 for ex.). If you want to slow down the scene, set the speed to be less than zero (-20 for ex.)

Position and ***Rotation*** properties are the same, as described for 3D Text object, above.

There are two more definitions for 3DMesh object:

- **Light** – this is the Light falling on the object by X, Y and Z axes as well as the global **Light Intensity**;
- **Color Balance** - the global adjustment of the intensities of the main colors – Red, Green and Blue.

IV.7. Scheduler

The **Schedule mode** allows creating a schedule for playing the objects.

To add an object to the **Schedule**, press the **Add to Schedule** button from the ***TitleBox***' **Toolbar.** A Schedule window will appear. It consists of **Schedule commands, Object's settings** and **Object list.**

IV.7.1. Scheduler Commands

Activate – press it to activate the schedule for the current project.

Log File – press it, if you want to create a log file. A browse window will open for defining a log file.

Default – sets the default settings. You can create your own default settings as well.

Del – deletes a selected object from the **Object's list**.

Clone – "clones" the settings of the selected object. A new line for the same object will appear in the **Object's list**. Then you can modify its settings. This feature is useful, when you want to define a different behavior of the object in the different days or hours, for example.

Reset – resets the Schedule.

IV.7.2. Object's Settings

Here are the available settings for scheduling of objects.

You should select an object from the list below to make the settings for it.

Date – defines the **Start** and/or **Stop** date. By default, the **Star**t day is today. The **Stop** date is not mandatory.

Start by – defines the starting trigger. It could be a specific time, an event (for example *GPI*) or CMD.

Duration – defines the duration of the object appearance through:

Loop **–** the number of loops. This field is active only for dynamic objects.

Stop Time **–** the stop time within the relevant day.

Duration **–** duration within the relevant day.

Loop Until **–** a stop event (GPI for example).

Type - defines the frequency of the object appearing – only once, every day, every week, every month or in a more sophisticated pattern *(Advanced)*.

Cycling – defines the period of repeating the object appearance in minutes.

It is possible to define the *end time* of the object appearance within the day *(Until)*.

Advanced – to get access to these settings, you have to check the ⦿*Advanced* box in the *Type* field. Here you can define a specific day of the week or a date for showing the object.

IV.7.3. Objects List

The **Schedule Objects list** occupies the lower part of the Scheduler window. All the scheduled objects and their settings are displayed in it.

In front of each object in the list, there is a check box. It is used for ☑activating/☐ deactivating the particular object in the schedule.

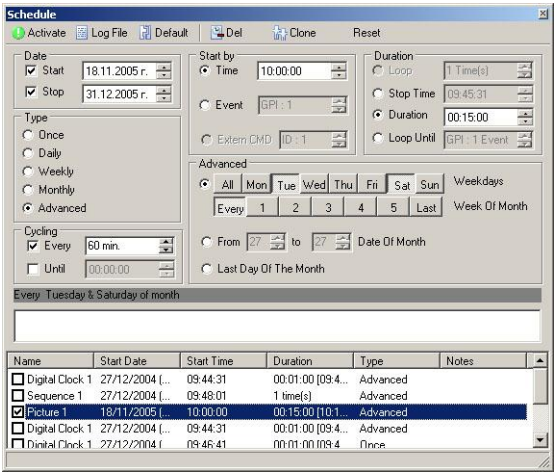
A right-mouse click in the **Objects list** opens a context menu for copying and pasting the object's settings.

Here is an Example:

If you want to:

- Start ***object1*** (picture1) at *10 o'clock* on *November, 18th and put it on schedule till December, 31st*;
- Display it for 15 minutes every hour;
- Display the object on Tuesdays and Saturdays (i.e. an advanced displaying),

The schedule settings for this object will look like this:



V. SLIDE MANAGER

In the past, you could create your ***TitleBox*** projects in a single layout. If you had to open a new layout, you were to load a new project. It was like having a single sheet of paper per project. With the ***Slide Manager***, your project turns into a sketchpad, allowing you to organize your projects in a multi-slide layout. Each sheet of this pad is called Slide below. In each Slide, you can have numerous groups of objects called Layers. Finally, in each Layer you can have as many objects as your system can handle.

You can control your slides/layers/objects manually or playout the slides consecutively (or simultaneously), using the Slide Controller.

The Slide Manager is locked to the right of the work area. You can open and close it using the ***Slide Manager*** button situated in the lower right corner of the ***TitleBox*** interface. You can also drag it out of the main ***TitleBox*** window.

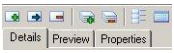
V.1. Slide control buttons

These buttons

are situated in the lower right corner of the ***TitleBox*** interface. They provide simple **slide control** options. The numbers in the middle represent information about the currently selected slide (i.e. slide 2 of 3 in the screen shot above).

The main Slide Manager window consists of three logical parts – control buttons above, slides thumbnails and project structure in the predominant part in the middle (this part is further divided into three tabs), and properties area, where you can find detailed description of the currently selected element in the list above.

V.2. Project control buttons



You can add/insert and delete slides using the first three buttons in the upper part of the Slide Manager window. When working in the ***Details*** tab, you can use the next two buttons to add/delete Layers. Again, while in the ***Details*** tab, you can show/hide slides' thumbnails by pushing the ***Thumbnails*** button.

In case you need to move a slide or an object, just drag-n-drop it to the new place you would like it to be.

If you want to show/hide/pause a slide, a layer, or an object manually, slide the mouse pointer to the end of its row. The Play/Stop/Pause buttons will appear. They are related only to the currently selected line. The elements' hierarchy will be observed, i.e. when you push Play for a Slide, all Layers and objects that belong to it will be played (if not disabled). If you push Play for a Layer, only the objects in this layer will be played. Respectively, if you push Play for an object, TitleBox will show only this object.

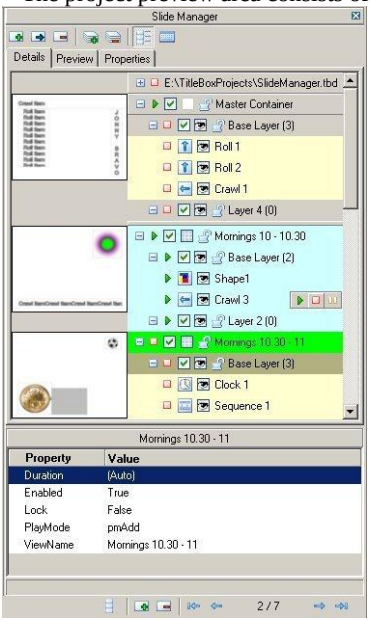
If a Slide is in Stop mode, it will not prevent you from playing its Layers and objects.

Pressing the ***Shortcut mode*** button will enable the shortcuts functionality. Thus, if you have assigned some shortcuts to slides in your project, you will be able to control

these slides using the relevant shortcuts. Please check the Preview section below for details.

V.3. Project Preview area

The project preview area consists of three tabs as described below.



V.3.1. Details

In this tab, you can view the hierarchical structure of your project. It is divided in two parts – project tree and properties.

V.3.1.1. *Project tree*

The project tree part is further divided in two levels – Level 1 that contains the Project line and the Master container and Level 2 that contains all "regular" slides.

Level 1

The **Project line** is situated on top. It displays the filename of the current project. The ***line control buttons*** here have slightly different functionality as compared to the other lines below. These buttons control the Slide Controller that will play all slides in the project one after the other (see the Slide control section for details). Under the project line, you will find a list of unassigned objects (if any). These objects are present in the object but do not belong to any of its slides. Click on the plus sign in the beginning of the project line to view them. You might need to show-hide such objects manually, without affecting the rest of the project.

The **Master Container** line is situated right under the project line. In it, you can create layers to be assigned later to the "regular" slides below. By using these master layers, you will avoid inserting the same objects in numerous slides. For example, if you need a logo shown in Slides 1, 3, 7 below, just create a Layer in the Master container. Then, go to Slide1, click the ***Assign Layer*** button and select the logo-containing layer from the drop-down list. Repeat the procedure for Slides 3 and 7. Thus, each time TitleBox displays Slide 1, 3 or 7, it will also display the logo-containing layer from the Master Container.

Another way to do this is just drag-n-drop the Layer from the Mater Container to the relevant slide.

Level 2

All slides are listed in this part of the Slide Manager window. You can create as many Slides and Layers as your computer can handle. You must have at least one Layer per slide.

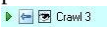
Each element is displayed in a separate line. Each line starts with a plus sign. You can click in it to expand the relevant level.

Next to the plus sign, you can see a play status notification. Further on there are several controls that vary within the different levels. You can find a detailed description of each level below.

In a **Slide line**, you will see Enable/Disable check box, Assign Layer button, Lock/Unlock button, and the Slide name (check the properties section below on how to change Slide names).

If you have assigned some layer(s) from the Master Container to a slide, their number will be reflected in the Assign Layer button. Thus, if you have assigned one layer, a small dark-blue square will appear in the button. If you assign two layers to the slide, there will be two dark-blue squares in the Assign Layer button, and so on.

In a **Layer line** there is no Assign Layer button as this contradicts the hierarchy. However, there is a Visible/Invisible button. This button will hide the currently selected layer from the work area, so its objects will not impede you while creating another layer in the same slide. After the Layer name, there is always a figure in brackets. It represents the number of objects contained in this layer.



In an **Object line**, you can see only play and visibility status notifications, and an icon of the object type the object name.

In case you need to move a slide or an object, just drag-n-drop it to the new place you would like it to be.

V.3.1.2. *Properties*

In the area below the project tree, you can see the properties of the currently selected line.

The properties of the Project Line contain some default settings that will affect all newly created slides:

Default color – this color will be applied in the preview thumbnails of your slides. You might need it in case there are some white characters in a text object that would be impossible to see on a white background.

Default slide duration – the time for showing the slides when playing them with the Slide Controller;

Default Play mode – the way of showing the slide on the screen:

Cross Play – if the previous slide has an out transition, the following slide will appear as soon as the out transition starts.

Stop Previous – if the previous slide has an out transition, the following slide will "wait" for this transition to end and only then will appear on the screen.

Add – the previous Slide will remain on the screen and the following will be overlaid on top of it.

Currently there is a known limitation related to this type of play mode – once you pile up a slide on top of another one, the first slide will remain on the screen, even if the second one is stopped. Thus, if you want to stop the first slide, you will have to do it manually.

Clear Previous – the previous slide will be removed immediately off the screen, its out transitions (if any) will not be executed.

Loop – specifies how many times the Slide Controller should play all slides in the project. The default value [zero] means endless loop – the Slide Controller will play all slides one by one repeatedly.

If a Slide Line is selected, you will see the following properties:

Duration – this is the time (in seconds) for showing the selected slide with Slide Controller. If you decrease this value to zero, the duration will be set to [Auto]. Auto duration is applicable when there are objects with different duration in the slide. In such a case, the Slide Controller will show the slide until the longest duration is through, then will go to the next slide in the list.

Enabled – it is equal to the ☑ *Enable* check box in the slide's row.

Lock – reflects the padlock status in the slide's row.

Play mode – how should TitleBox treat the previous slide on starting the currently selected one. Please, check the project properties above for details.

View Name – click in this line to change the slide name at your will.

If a Layer Line is selected, you will see:

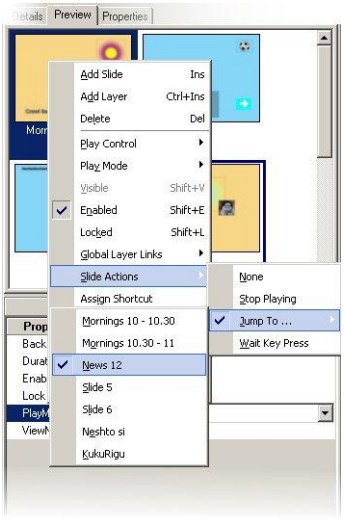
Enabled – shows the status of the ☑ *Enable* check box of the currently selected layer.

Lock – reflects the padlock status in the layer's row

Visible – shows the status of the Visible/Invisible button.

When an object is selected, you will see below all its properties that can be adjusted in the main ***TitleBox*** interface. These properties are different for the different objects and have already been described in the Object Properties section (III.4.3) of the ***TitleBox*** chapter above.

V.3.2. Preview



In this tab, you can see thumbnails of all Slides in the current project.

Double-clicking in a slide's thumbnail will load it in the work area for editing. If you select an object in the work area, its properties will be displayed in the Details area below.

Right-clicking in a slide will open a context menu. It contains basic slide controls.

The **Play Mode** represents the way of showing the slide on the screen in relation to the previously played slide. Please, check the project properties section above for further details.

Sliding the mouse over the **Global Layer Links** line will open a drop-down list of all Layers available in the Master container.

The **Slide Actions** list contains four commands related to the Slide Controller. They will be executed when the duration of the current slide is over.

None is the default slide action, no command will be sent to the Slide Controller when the slide duration is over.

Stop Playing – when the duration of the currently selected slide is over, it will sent a stop command to the Slide Controller. A small sign

will appear in the lower right corner of the slide thumbnail to notify the operator about the assigned action.

A Jump To… action will make the Slide Controller loop between the current slide and the specified Jump To… slide.

Wait Key Press is a pause command sent to the Slide Controller. Playback of slides will resume at any key stroke. The following sign

will appear in the thumbnail to notify the operator.

Selecting **Assign Shortcut** will open a shortcut-defining dialog. To define a shortcut, click in the *Shortcut* string and press the keys you would like to assign.

Below, select the command to be executed at pressing these keys:

⊙*Toggle Play/Stop* – to show/hide the slide off the screen;

⊙*Play From Slide* – to start displaying all following slides in a row (via the Slide Controller).

To clear the shortcut, press the ***X*** button to the right of it.

All assigned shortcut will appear in the slide's thumbnail:

The blue background means the assigned command is Play From.

The green background means the assigned command is Toggle Play/Stop.

The red background means that there is an assigned shortcut to this slide, but the Shortcut mode button is not pressed.

The assigned shortcuts will be active only when the ***Shortcut mode*** button is pushed.

NOTE: In shortcut mode, the newly-assigned shortcuts have higher priority than the default ones. Thus, while in shortcut mode, the default shortcuts in ***TitleBox*** will operate normally unless duplicated with newly assigned shortcuts. For example, the default command for **<*Ctrl* + *H*>** is Add to schedule, but if you assign **<Ctrl> + <H>** to be Toggle Play/Stop of a slide, the shortcut will act as Toggle Play/Stop.

V.3.3. Properties

In this tab, you can see the detailed properties of the line that is currently selected in the Details tab.

V.4. Slide Controller

The slide controller will play your slides consecutively, with duration at your will. If you want to rearrange the order of showing the slides, you will have to drag-n-drop them in the ***Details*** tab. If you want to skip a slide, just disable it by un-checking the ☑ *Enable* checkbox in its row.

The Slide Controller window contains four rows and eight buttons. The Controller counter is situated in the top row. It counts the time since the slide controller was started.

Below, you can see the name of the currently playing slide.

Further down is the Slide counter. By default, it shows the elapsed time since the start of the current slide. If you want to see how much time remains to the end of the slide duration, click in the Time> cell. It will turn into <Time and will start counting down.

The last row has three parts – play status, loop value and the number of the currently playing slide.

In the bottom of the Slide Controller are situated the playout control buttons. They provide hints and hotkeys:

Button	Command	Shortcut
	Play	F5
	Stop	F6
	Pause	F7
	Resume	F7
	Go to First Slide	Ctrl + Home
	Go to Previous	Ctrl + PageUp
	Go to Next	Ctrl + PageDown
	Skip Next Slide	Ctrl + Left arrow

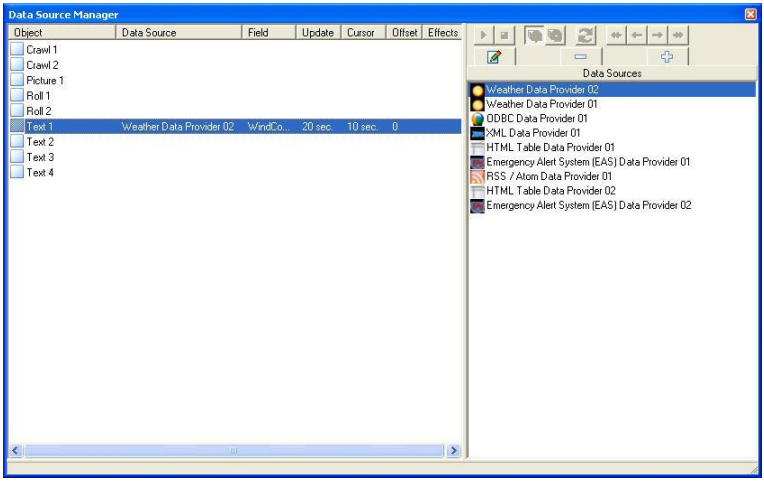
By default, the Slide Controller is a separate window that appears outside the Slide Manager. If you want to lock it in the Slide Manager window, right-click in the counter and select Dock in Manager.

VI. Data Source Manager

The Data Source Manager allows users connect to different data providers through the selected plug-ins.

This engine allows connecting different properties of a ***TitleBox*** object to different data sources or providers, like RSS channels, *.html files, *.xml files or third party data bases. Besides, the same data source(s) can be related to different objects in ***TitleBox***.

The dialog below opens after pressing the Data Source Manager Button in the main ***TitleBox*** interface.

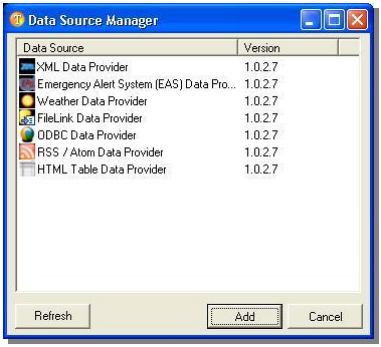


The left part of this dialog contains a list of all objects in the current project and already assigned to them data source instances.

To add a new data source instance, press the ***Add*** button.

The list of currently available data provider plug-ins will open. In it, you can choose the data source to be used as a new instance. Select its line and press ***Config***. The configuration dialogs vary according to the selected plug-in.

You can read more detailed description of each plug-in definition further in that manual.

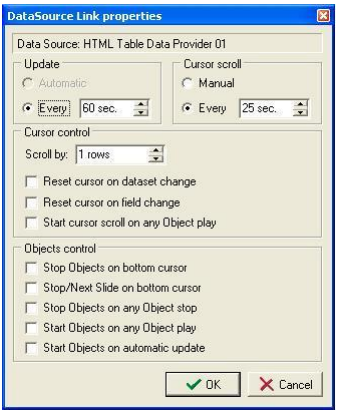


When you configure the plug-in, and press

OK button, into the main screen a new data provider appears in the list.

Select the needed data provider and drag&drop it over the ***TitleBox*** object in the left.

Then a **DataSource Link Properties** window will open. Here you have to define the way of data source appearing.



Into the header line of the Property window is visible the name of the selected data provider.

Into **Update** area you have to specify how often to update the source information. Select Automatically, to update the data automatically on source change. Automatically option is available only for EAS data provider and File link data provider.

Select Every xx sec, to update the data periodically at every xx sec. By default the update is at every 60 seconds.

The term "**cursor**" further in that section, is used to define the cursor position into the data source.

Into **Cursor scroll** area, you can specify how to move the cursor to the next row, if the data source has many rows: Manually, or at Every xx seconds. If select Manually, you can start the data provider manually from main data provider menu

NOTE: The cursor continue cycling, even the connected object is not played on air. This means that when you start again the object, it will show data from current curser position.

Tip: If you want at every object start to show the first line from the data source, leave **Cursor scroll** to be Manual and check **Start cursor scroll on any Object Play**.

In **Cursor control** area, there are the following settings:

Scroll by *X* rows, where ***X*** is a number of rows to scroll the cursor. If ***X*** =1, the cursor will scroll each row. If ***X*** =2, the cursor will scroll each second row (i.e. the cursor will skip one row), etc.

Reset cursor on dataset change – check this, if you want to move the cursor to the initial position, when the data in Master column of data provider is changed.

Reset cursor on field change - check this, if you want to move the cursor to the initial position, if any field into data provider changes.

Start cursor scroll on any Object Play – check this, to start the cursor scrolling from the first position in data source, any time, when the object is started.

In **Objects control** area there are the next settings:

Stop Objects on bottom cursor – check it, if you want to stop the object(s) connected to the data provider, when the cursor is at the end of the data in data source.

Stop/Next Slide on bottom cursor - check it, if you want to stop the object and go to the next Slide, when the cursor is at the end of the data in data source.

Stop Objects on any Object stop – check this, to stop all objects connected to the same data provider, if any of these objects is stopped. It is useful, when the project is control remotely.

Start Objects on any Object play check this, to start all objects connected to the same data provider, if any of them is started.

Start Objects on automatic update - check this, to start all objects connected to the same data provider, on automatic update of the data source. It is relevant, if Automatic update is checked. Automatically is available only for EAS data provider and File link data provider

Press **OK** button to save **Source Link** settings.

After that, an **Object Link Properties** window will appear. Here you have to define how to link the data from the data source to the ***TitleBox*** object.

In the header of the window, you can see the name of the ***TitleBox*** object to which data provider is assigned and the name of the data provider.

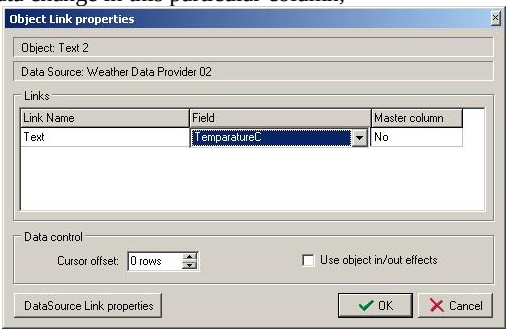
Next is a **Links** area, where are three main columns:

Link Name – this is the type of the selected object (*Text, Sound*, etc.).

Field – here you can see the list of all available fields from the data-source. Select from drop-down list one of them, which you want to show into the ***TitleBox*** object.

NOTE: You can assign a data-source field to a ***TitleBox*** object, only if they are from the same type – text, sound, etc.

Master column – you can select one of the data provider's columns to be a **Master** column. Enter YES in Master column field, if the selected field is from this master column. Set a column to be a **Maste**r, if you want to reset the cursor for all columns, on data change in this particular column,



In **Data control** area you can set a **Cursor offset** – this is the offset upon the cursor for displaying the data into this particular ***TitleBox*** object.
Example: Let show the data from data source in a table 3x3 (3 rows and 3 column) in ***TitleBox***. You have to draw 9 objects in ***TitleBox*** project, each connected to a separate field from data provider. Into **DataSource Link Properties->Cursor control->Scroll by,** enter 3(scroll should be equal to the numbers of table rows). Into **Object Link Properties** -> **Cursor offset**, cursor offset should be 0 for the first row; 1 for the second row and 2 for the third row.

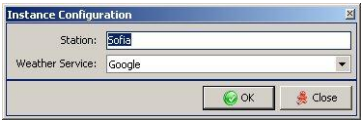
If you want to use in/out effects, you have to check the relative check-box.

Press **OK** button to save the settings.

VI.1. Weather Data Provider

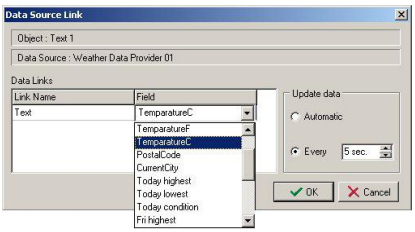
This data provider displays information coming from weather forecast sources. For now, the only available provider is Google weather. This way online weather information will be shown in the objects.

To adjust the *Weather Data Provider*, click the button in the main ***TitleBox*** interface. The *Data Source Manager* dialog will open. The left part of it contains a list of all objects in the current project. To add a new *Weather Data Provider* instance, press the ***ADD*** button. A list of all currently available data source plug-ins will open. Select the *Weather Data Provider* and after that press the ***ADD*** button. The dialog to the left will appear for specifying a station and data provider.



After pressing ***OK***, a *Weather Data provider* instance will appear in the list to the right part of the *Data Source Manager* dialog. For displaying information, using this instance, select the Weather Data Provider line and drag it to the object desired.

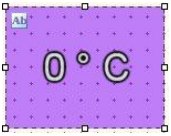
When you release the mouse button, a fine-tune dialog will open so you can select what kind of information will be shown in the object (as Temperature, Postal Code, Current city humidity, etc.). You can choose a period for updating the data as well:



⊙*Automatic* - if you choose this option, the displayed information will be updated automatically when the linked data is changed.

⊙*Every […] sec* -here you can define an exact period for updating the information, displayed on the screen.

This plug-in will display the weather information according to the settings you have made. For example, if you intend to display information about *Sofia* town and you have chosen *Temperature C* from the *Field* drop-down list, the Weather Data Provider will show the current temperature within the object (have a look at the example to the right).

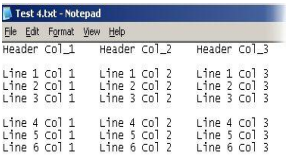


(!) TIP: You can assign a Weather provider to one object only. If you want to display weather information in more than one object, you have to add new instances.

NOTE: This plug-in is still BETA. Working with Yahoo and binding pictures to objects are still in development at this stage.

VI.2. FileLink Data Provider

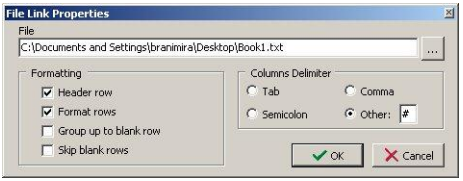
Select this plug-in if you intend to link certain objects in ***TitleBox*** to text documents. The "normal" file links, assigned to text objects show the desired text document, as it is. The difference between using those file links and *FileLink Data Provider* is that this plug-in allows the user to modify how the text from the desired file is displayed.

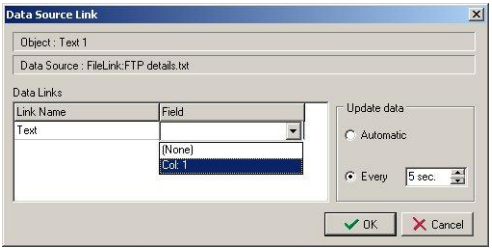

Test 4.txt - Notepad
File Edit Format View Help
Header Col_1 Header Col_2 Header Col_3
Line 1 Col 1 Line 1 Col 2 Line 1 Col 3
Line 2 Col 1 Line 2 Col 2 Line 2 Col 3
Line 3 Col 1 Line 3 Col 2 Line 3 Col 3
Line 4 Col 1 Line 4 Col 2 Line 4 Col 3
Line 5 Col 1 Line 5 Col 2 Line 5 Col 3
Line 6 Col 1 Line 6 Col 2 Line 6 Col 3

For example, using this provider, TitleBox can interpret one text document as a database. Let us assume that there is a text document, looking as the one which is shown in the example to the left. The user can define in what kind of order to display the rows and columns, contained within the text.

Press ***Config*** while File Link Data Provider is selected, to browse for the file you need. Select it and press ***Open***.

The dialog to the right will appear, so you could define what the Formatting of the linked file is and what is the Columns Delimiter. Click ***OK*** when ready.





Press ***Close*** to exit the plug-ins list.

Back in the Data Source Manager window; drag the FileLink data source from the right to a text object in the left.

When you release the mouse button, a link fine-tune dialog will open so you could select which column from the file should be linked to that text object. Besides, you can choose the period for updating the data:

⦿*Automatic* – if you choose this option, the data will be updated automatically when the linked file is changed.

⦿*Every* [xx sec] – here you can define an exact period for updating the data displayed on the screen.

NOTE: Currently you can link only to *txt and *rtf files!

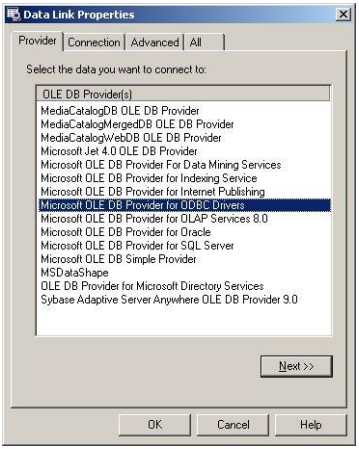
VI.3. ODBC Data Provider

This plug-in allows connecting to ODBC-compatible database formats and displaying the information they contain on the screen.

Choose the ODBC Data Provider in the list of available plug-ins and press ***Config***.

The ODBC Connection Manager will open. Press to create a new connection. The following dialog will open for you to specify the Connection Alias and view the Connection String.

Press ***Build*** to configure the connection. The window below will open:


Data Link Properties
Provider
Connection
Advanced
All
Select the data you want to connect to:
OLE DB Provider(s)
MediaCatalogDB OLE DB Provider
MediaCatalogMergedDB OLE DB Provider
MediaCatalogWebDB OLE DB Provider
Microsoft Jet 4.0 OLE DB Provider
Microsoft OLE DB Provider For Data Mining Services
Microsoft OLE DB Provider for Indexing Service
Microsoft OLE DB Provider for Internet Publishing
Microsoft OLE DB Provider for ODBC Drivers
Microsoft OLE DB Provider for OLAP Services 8.0
Microsoft OLE DB Provider for Oracle
Microsoft OLE DB Provider for SQL Server
Microsoft OLE DB Simple Provider
MSDataShape
OLE DB Provider for Microsoft Directory Services
Sybase Adaptive Server Anywhere OLE DB Provider 9.0
Next >>
OK
Cancel
Help

The ODBC configuration dialog contains four tabs:

In the ***Provider*** tab, select the data base type you want to connect to.

When you click ***Next***, the ***Connection*** tab opens, so you could configure the connection to the selected database.

The ***Connection*** tab looks differently depending on the Provider you have chosen. When you are done entering the connection details, press ***Test Connection*** to check if it works correctly.

After configuring the connection, you can open the ***Advanced*** tab for more configuration options, which differ depending on the selected Provider.

Finally, you could view all settings for the current connection in the ***All*** tab. Click ***OK*** and ***Close*** in all open windows until you return to the Data Source Manager. In it, double-click on the newly-created ODBC Data Provider instance. A fine-tune dialog will open for you to configure the data Query. Press ***Execute Command*** to check if the connection is working correctly.

Press ***Apply*** and ***Close***.

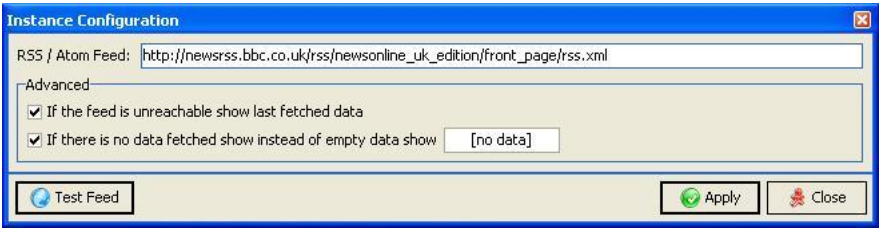
To assign the ODBC Data Provider instance to an object, drag it from the list in the right to the relevant object in the left.

Close the Data Source Manager window.

VI.4. RSS Data Provider

Choosing this plug-in allows you connect to RSS feeds from the Internet.

Choose it from the list of available plug-ins and press ***Add*** button. The following window will open.



In **RSS/Atom Feed** field enter the URL of the needed RSS feed.

To check the connection, press **Test Feed** button. You will receive a message if the connection is successful.

There are two advanced options available for choosing the proper behavior if the RSS feed is not reachable or if there is no data.

Check the first check-box, into **Advanced** area if the RSS feed is not reachable, but you want to see the old data in the relative ***TitleBox*** object;

Check the second check-box, if there is no any data in RSS feed, but you want to have some text into related ***TitleBox*** object (like “No data available” or “please excuse us…”, etc.).

Press **Apply** button to accept the settings.

Press **Close** button to close the window without changes.

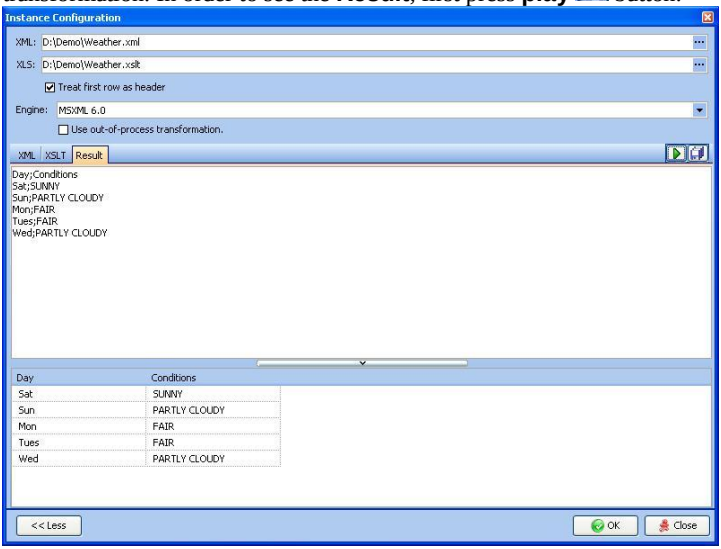
VI.5. XML Data Provider

Choosing this plug-in allows you to insert data into TitleBox object from an *.xml file.
Choose it from the list of available plug-ins and press ***Add*** button. The following window will open

Into **XML** field, enter the location of the *.xml file.
Into **XSL** field enter the location of the related *.xsl (*.xslt) file.

An XSL (eXtensible Stylesheet Language) file is needed for defining XML document transformation and presentation. Since the XML language does not use predefined tags, it is necessary to provide the application with information on how to interpret the XML document.
In ***TitleBox***, the XSL file is needed to transform the XML file to coma separated text table.

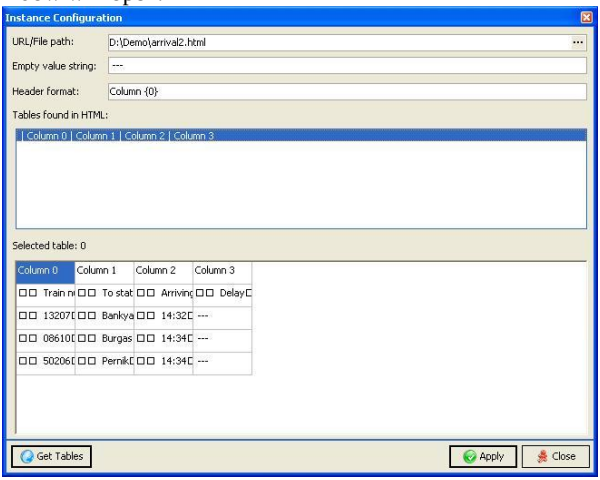
If you have a header line, check the check-box **Treat first raw as header.**
Press **More** button to see the source *.xml file, the related *.xls file and the result of the transformation. In order to see the **Result**, first press **play** button.



VI.6. HTML Table Data Provider

Choosing this plug-in allows you to insert data into TitleBox object from an *.html file.

Choose it from the list of available plug-ins and press ***Add*** button. The following window will open.



URL/File path – enter here the location of your *.html table

Empty value string – enter here the string, which you want to be visible if there are no data into the table.

Header format – this is the format of the table header. By default, it is "Column {0}"

Into **Tables found in HTML** area, you will see the list of tables found into the source *.html file. In order to see a table, you have to select a line and press **Get Table** button in the bottom of the window.

Press **Apply** button, to accept the settings.

Press **Close** button, to close the window without saving the changes.

VI.7. EAS (Emergency Alert System) Data Provider

The **Emergency Alert System (EAS)** is a national warning system in the United Stated of America put into place in 1997. The EAS requires broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service (SDARS) providers, and direct broadcast satellite (DBS) providers to provide the communications capability to the President to address the American public during a national emergency.

The system also may be used by state and local authorities to deliver important emergency information, such as AMBER alerts and weather information targeted to specific areas.

Each State and several territories have their own EAS plan.

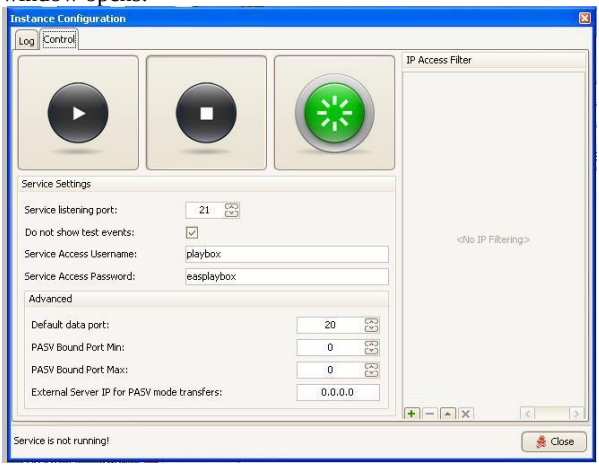
The EAS regulations and standards are governed by the Public Safety and Homeland Security Bureau of the FCC (Federal Communications Commission).

All EAS equipment must be FCC certified for use.

TitleBox is connected to EAS decoder unit via LAN connection. The messages coming from EAS unit are connected to ***TitleBox*** objects via EAS data provider.

EAS data provider is started as service. It could be assigned to a text and to an audio object.

When you select EAS data provider from a list of dataproviders, the following setup win window opens:



Here, you have to enter the IP address of the EAS unit, as well as some advanced details of the connection. If there is connection username and password defined, you have to enter them also.

When you are ready, press the **Play** button in order to start the service.

Note: It is very important to set the proper time zone to the system and the system clock to be accurate, in order the service to work correctly.

Important: TitleBox works with decoders, produced of Digital Alert Systems, LLC with FCC ID: R8VDASDEC-1EN.

VII. Task Manager

Task Manager is an instrument for creating specific **tasks** in ***TitleBox***.

A **task** is an action, which is executed in ***TitleBox*** (like play object, stop object, etc.). The **Task** usually is performed, when happens a specific condition. The condition (trigger) on which **Task** is executed is defined by user.

The condition (trigger), on which the **task** is performed, is called **event**. An **event** could be the object's status (like play, stop, etc.) or a command (like incoming GPI signal; ***TitleBox*** internal command, etc.).

First you have to create a **task**, and then you can assign this **task** to an **event**.

For example: Let say the user wants to start *Object1* when *Object2* stops. Then the **task,** which have to be created is "*Start Object1*" and the condition, i.e. the **event** is "*OnStop Object2*".

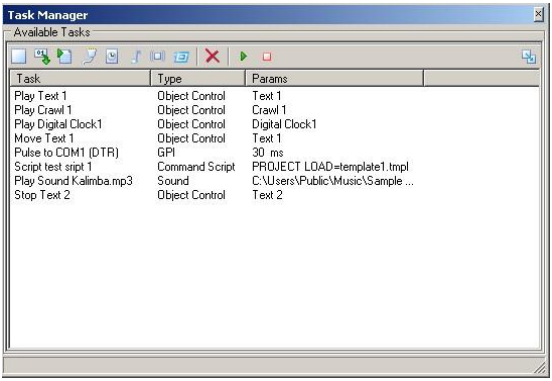
Other example is, if the user wants to start *Object1*, when a *GPI* signal comes. Then the **task** is "*Start Object1*" and the **event** is incoming the *GPI* signal.

Other example: To generate a *GPI* signal when *Object1* starts, than the **task** is "*GPI*" and the **event** is "*OnStart Object1*".

VII.1. Tasks

For creating **tasks**, you can start the **Task Manager** from **Project** menu ➔ **Plugins➔ Task Manager.**

The window will open also if right mouse click over an object in ***TitleBox*** working area and select **Task Manager** from the list.



All **tasks** are visible into the **Task** list.

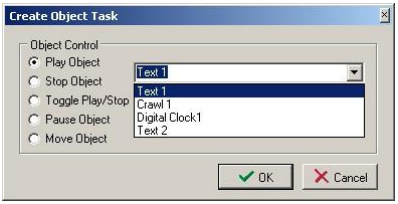
To create a new **task**, press the related icon from the menu bar.

To delete a **task**, select it and press delete button from the menu bar.

The **tasks** could be executed manually (for test purposes). Press play button to start a **task** and stop button to stop a **task**.

The available **tasks** are:

➢ ***Object Control***



It provides options for creating object-related **tasks**: *Play* Object; *Stop Object; Toggle Play/Stop; Pause object; Move Object.* Select one of these options and then select an object from a drop-down list at the right of the window. In this drop-down list are listed all objects existing in the current project. Press ***OK*** and you will see your **task** in the **task** list.

If you select the ⊙Move Object control, an additional window will open where to enter the moving options.

Select ⊙Move and enter **X** and **Y** values, to move the object to a position with exactly these **X** and **Y** coordinates.

Select ⊙Increment and enter **X** and **Y** values, to increase the existing coordinates of the object with these values.

Repeat the procedure till you have all necessary **task**s related to objects.

➢ **DataProvider Control.**

Here you can create **tasks** related to data providers.

At the first field in the window, you have to select a data provider from a list of all existing dataproviders. Then you can choose an activity for this data provider, like ⊙*Stop,* ⊙*Start,* ⊙*Update* data provider.

If there are more than one row in the data provider source (like in RSS data provider or in ODBC data provider), than you can select also ⊙*Cursor scroll* –move cursor to next row; ⊙*Cursor top* – move cursor to the first row and ⊙*Cursor bottom* – move cursor to the last row.

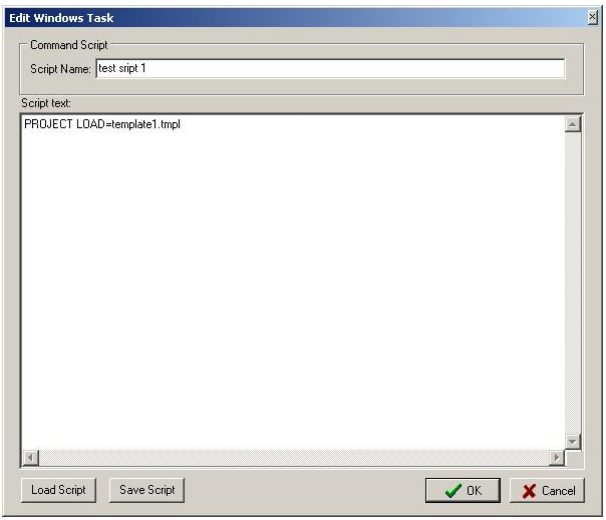
If ⊙*Cursor scroll* is selected, an additional field is visible. There you can enter the number of rows to scroll cursor.

➢ Script task

This command is used, if you want to create a **task** based on ***TitleBox*** internal commands. You can refer to the ***TitleBox*** API to learn more about ***TitleBox*** internal commands.

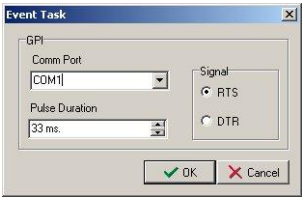
For example, you can create a *Script* for loading a new project in ***TitleBox***: "PROJECT LOAD=template1.tmpl"

Further you can assign this **task** to any of the existing **events.**



Enter the name of the **task** in the **Script Name** field**.**
Enter the ***TitleBox*** command into **Script text** field.
Press **OK** button to create the **task.**
If you want to save the script from created **task** in a file, press the **Save Script** button**.**
If you want to use an existing script, press **Load Script** button and select the script file.

➢ *GPI Task*



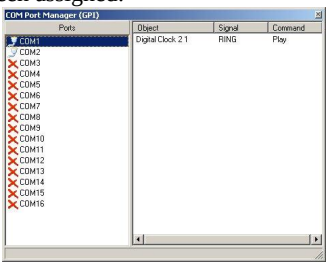
This **task** is designed for creating **GPI** pulses.

Into the GPI **task** window, specify the GPI *Signal* type (RTS or DTR) and to which COM port it should be sent. Specify also the Pulse duration in milliseconds.

Press ***OK*** to add this **task** to the **Task Manager** list.

The GPI events window can be started from **Project->Plugins-GPI manager** as well.

In the GPI manager, you can view all GPI events and the objects to which they have been assigned.



➢ Event sequencer Task

This **task** is designed for generating a time sequence for executing another **tasks.**

An *example* of such sequence is, if you want to start a Digital Clock, than to start a picture and move it horizontally on screen over a specific period of time and at finally to start another task. You will have the following sequence of tasks:

1. **Task** "*Play Digital Clock 1*";
2. **Task** "*Play Picture 1"* (to be started 5 sec. after the beginning of the sequence);
3. **Task** *"Move Picture1"* (to be started 10 times at every 5 seconds);
4. **Task** *"Start timer1"*

In this example, you have to fill the setup window like it is shown in the following screen-shot.

Into **Task Name**, enter the name of your time sequence (*sequence 1*).

Into **OnStart** field, select the name of the first **task** in the sequence (*Play Digital Clock 1*). Select the name from the drop-down list. If you don't want to have task on sequence start, uncheck relative ***Enable*** check-box.

Into **Delay before Loop** field, enter the interval of delay in milliseconds (*5000ms=5sec.*). This is the delay after the sequence start and before the start of the loop task. Into **OnEndDelay** field enter the **task** which will be executed with this delay (*PlayPicture1*). Select the name of the **task** from the drop-down list with existing **tasks**. If you don't want to have delayed **task**, uncheck relative **Enable** check-box.

Into **OnLoop** field, enter the **task** which will be executed on every loop (*Move Picture 1*). Into **Loop Interval** field enter the interval for repeating the **task** (*5sec.=5000ms*). Into **Loops Count** field enter how many times the **task** will be repeated (*10*).

If **Loops Count** is zero (0), the looping will be infinite, until task is running.

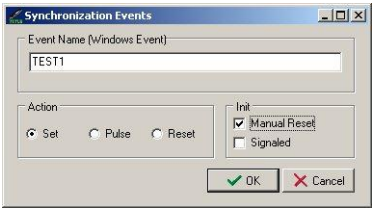
Into **OnStop** field, enter the **task** which will be executed at the end of the sequence (*Start timer1*). This **task** will start when the looping is finished or when a **Stop sequence** command is send.

When you are ready with definition of the sequence, press the **OK** button to save it. You will see two tasks in the task list, created automatically: ***Start sequence name*** and ***Stop sequence name***. The command **Stop *sequence name*** usually is used to stop a sequence when the **LoopInterval** is zero (infinite).

➢ *Play Sound*

It is designed for creating sound **tasks**. Pushing the icon will open the **Play Sound** dialog and all you have to do is to browse for the sound you need. You can open all Direct-Show compatible sound files (**.wav, *.mp3, etc.*). You can preview all sound **tasks** in the **Task Manager** using the ***Play*** and ***Stop*** buttons.

➢ *Windows Named Event Task*



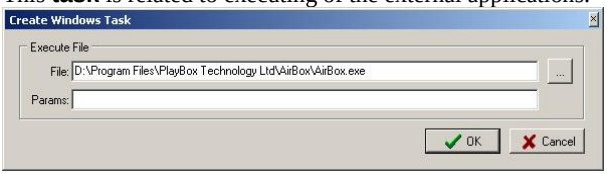
This **task** is related to Windows Named Event Objects. For more information about them, you can refer to Windows documentation.

The **Event Name task** was developed to synchronize the external applications to ***TitleBox***. Thus, if there is a third party application that can accept certain event names, ***TitleBox*** can trigger events in these applications.

Each system event should have a Name. You can type it in the ***Event Name*** string. Below, you have to choose the ***Action*** and the type of ***Initialization***.

➢ *Create Windows Task*

This **task** is related to executing of the external applications.



Into field **File** enter the executable file name (including the full file's path). You can start **.exe* **.bat* or **.cmd* files.

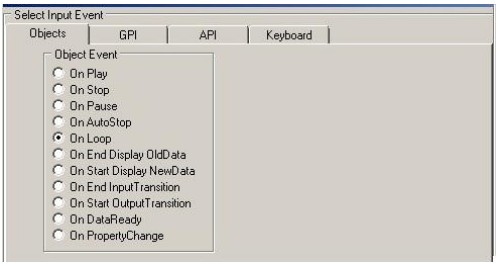
Into **Params** field, you can enter some parameters for starting the application.

For example, if in the **File** is entered ***AirBox***, into **Parameter** you can enter the name of the playlist which you want to start or the ***AirBox*** instance number.

If there is a file association existing, you can enter into the File field, only the file name of the document to start the associated application.

For example, if you have a file association for ***Windows Media Player***, into field **File** you can enter only the location and name of the *.mp3 file.

VII.2. Input Events



The **events** are triggers, on which the **tasks** are performed.

The **Input Event** dialog opens when you select an object, right mouse click and select **TaskManager** from menu.

The input events are grouped in four major groups: Object related events, GPI events, API events, Keyboard events.

- Objects events

The available object's **events** are: Play, Stop, Pause, AutoStop, Loop, End display old data, Start display new data, End Input transition, Start Output transition, Data Ready, Property Change.

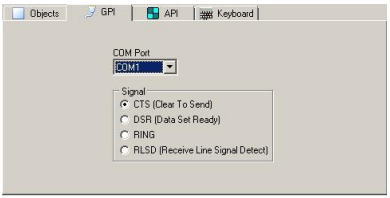
AutoStop – this event concerns rolls, crawl, and animation objects. This event is generated when a number of loops for the object is set and the last loop is executed.

End display old data and Start display new data events are connected to changing of the content into the rolls, crawls and animations. Because of the nature of these objects, it is possible to have both – old content and new content on screen. The End display old data event happens when the old data stops to be visible on the screen. And the Start display new data event happens when new data become to appear on the screen.

Data Ready – this event is related to changing the data into an object. When the new data is ready to be displayed, than DataReady event is happening.

- GPI events

This feature in ***TitleBox*** allows controlling objects through receiving certain signals on the PC COM ports. In order to specify the "meaning" of each signal to each COM port, select the Com port and then select the type of signal.



- API events

These events are connected to usage of ***TitleBox API*** (Application Program interface).

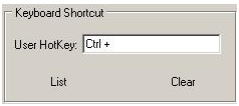
In ***TitleBox API***, there is a command "EVENT xxx", where xxx is a number equal or higher than 1001. In **Task Manager->API events**, you can define a specific number which to be used further in such Event command.

When to the API event (*for example: number=1001*) is assigned a task and ***TitleBox*** receives a command "EVENT xxx" (*xxx=1001*), then the task assigned to this API event will be executed

- KeyBoard events:

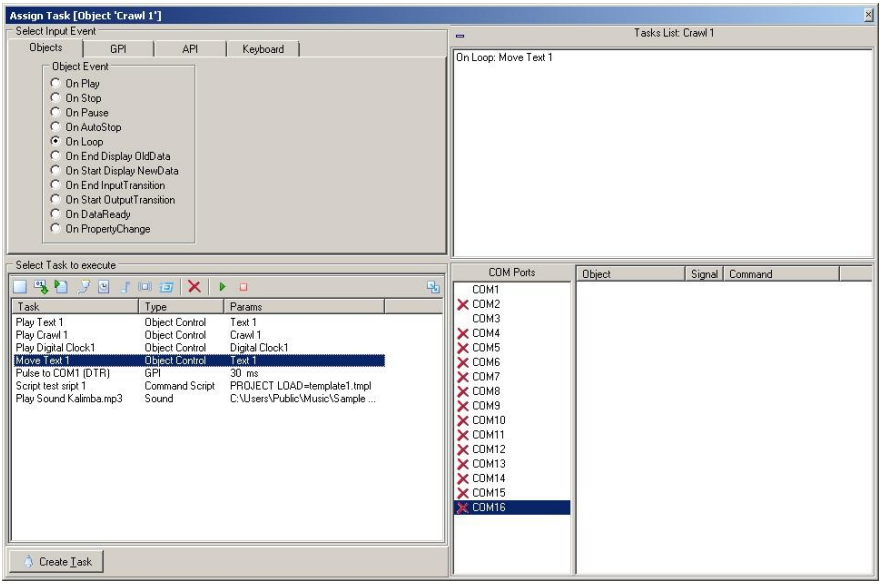
Keyboard events are user definable keyboard shortcuts for some action.

These events are connected to some **task**, so when the keyboard combination is pressed, the assigned **task** is executed.



Press the **List** button to see all created keyboard shortcuts.
Press the **Clear** button to delete all created keyboard shortcuts.

VII.3. Assigning a task to an event



To assign a **task** to an **event**, you have to open the **Assign Task** dialog. It is available after right mouse clicking on an object in ***TitleBox*** project and selecting **Assign Task** from menu.

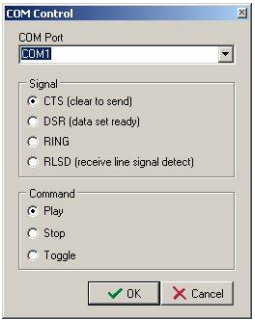
You will see the list of already created tasks. If there are no tasks, first create them into **Task** area of the window.

Select an **event** from the available events and then select a **task** from **Task** list. Press the **Create Task** button in the bottom of the **Assign task** window

In the right side of the **Assign Task** window, you can see the list of all **tasks** related to the currently selected object.

If you want to see the **tasks** related to another object, just select this object and press the **task list** button from the main ***TitleBox*** window.

To see the **tasks**, which are not related to any object (keyboard shortcuts), unselect all objects in ***TitleBox*** and press the **task list** button.



There is a specific definition, if you want to control the whole ***TitleBox*** project on incoming GPI signal.

To invoke the global **Assign GPI event** window, unselect all objects in ***TitleBox*** project, right mouse click and select Assign GPI event from menu.

Select the PC COM port and the type of the GPI signal which will be received (CTS, DSR, RING or RLSD).

In the lower part of the screen, select the Command which ***TitleBox*** have to execute when the GPI signal is received. There are three possible commands: Play, Stop and Toggle.

In the *example* from screen-shot, when on port COM1 a CTS signal is received, ***TitleBox*** will start to Play the current project

CLIP TRIMMER

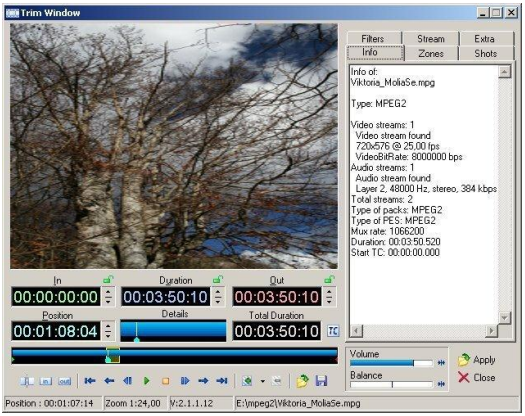
The ***Clip Trimmer*** is used for previewing and trimming clips in ***ListBox, DataBox*** and ***AirBox*** modules. You can preview clips even during the on-air playback in ***AirBox***.
NOTE: MPEG2 trimming is *GOP* accurate! *IN* points can be positioned only on I-frames, while OUT points can be positioned on I- or P-frames. Depending on the stream's *GOP* size, this may lead to a slight inaccuracy, limited to half a *GOP* for the *IN* points and a couple of frames for the OUT points. If the stream's *GOP* size is one (I-frames only), then trimming will be frame accurate.

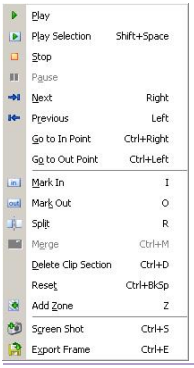
I. USER INTERFACE

It combines a *VGA* preview screen and tools for editing the *In* and *Out* points of *MPEG* clips.

Clips are loaded into the **Trim Window** by double-clicking on them in ***ListBox, DataBox*** or ***AirBox*** modules.

The trimmer window has a number of keyboard shortcuts that are listed in the shortcuts leaflet in the PlayBox customer's package.





I.1. Preview Screen

The Preview screen occupies the largest part of the Trim Window. It shows the video clip which is being trimmed.

Pressing the right mouse button over the **Preview screen**, invokes a context menu with the most frequently used commands in **Trimmer** (*See the screenshot to the left*).

I.2. Trimmer Control

Once a clip is loaded, you can navigate and edit it, using the ***Clip Trimmer*** controls.

The following boxes are situated under the preview window:

- *In* box – displays the In point timecode
- *Out* box – displays the Out point timecode
- *Duration* box – displays the clip duration. It is equal to the difference between *In* and *Out* points.

  After entering the In and Out timecodes, the Duration value will be calculated automatically. Moreover, after entering the In and Duration values, the Out point timecode will be calculated automatically. It is possible to lock the In, Out or Duration value (but not all the three of them, of course) by clicking on the lock icon to the right of the box. Thus, you can protect their values from changing (by mistake, for example).

  To enter values in the In, Out or Duration box, you can use the arrows beside them or type numbers in the boxes.
- *Position* box contains the timecode of the currently selected point in the clip. If you type another timecode in this box and press ***<Enter>***, the marker will move to the relevant position.
- *Total Duration* box – displays the original, untrimmed duration of the clip.
- *Details* box – it shows the part of the clip, enclosed in the zoom frame.

The *Trim bar* visualizes the clip length and the clip markers.

The *Zoom frame* is a yellow square in the trim bar. It defines what part of the clip is being shown in the Detail View. It is quite useful for long clips. You can move or resize the zoom frame, by mouse dragging. You can define a new Zoom area by drawing a rectangle through dragging the mouse while holding its right button.

- ***SPLIT*** button - splits the clip and thus defines separate sections in the clip. After splitting the clip, each new clip section appears as a separate row in the play list. You can play them separately, change their order, insert other clips between them, etc.
  You can define *In/Out* points for each section of the split clip. The *In, Out* and *Duration* boxes display information about the selected section. Multiple In/Out definitions are used for skipping some parts of the clip during its playback. Thus, you can exclude existing commercials, titles, etc. from the original clip.

  You can create separate sections also by pressing repeatedly the ***In/Out*** buttons. Pressing the ***In*** button after an existing *Out* point, creates a new section after the existing one. Pressing the ***Out*** button before an existing *In* point, creates a new section before the existing one.

- ***IN*** button – marks the *In* point for start of playback in ***AirBox***. The *IN* point marker is colored green and by default it is at the beginning of the clip.
- ***OUT*** button – marks the *Out* point for end of playback in ***AirBox***. The *OUT* point marker is colored red and by default it is at the end of the clip.

You can set an *In/Out* point, by dragging the *IN/OUT* marker on the trim bar or by entering timecode directly into the *IN/OUT* box.
The *IN/OUT* markers show the frame before/after (i.e. if the marker is on the *Out* point, you actually see the next frame, but not the last frame of the trimmed part.).

- ***Play*** button starts playing the clip. Then it transforms to pause/resume.
  If you want to play only the trimmed part (i.e. between the *IN* and *OUT* points), press **<Shift>** + ***Play***.

- ***Stop*** **button** stops the playback and "rewinds" the clip to its beginning.
- ***Pause*** ***/Resume*** button. It stops and resumes the clip playback from the same timecode position.

- Button - skips one frame forward
- Button - reverts to one frame backward
- Button - fast forward (if it is possible)
- Button - rewind (if possible)
- Button - moves to the next mark point (in/out/bookmark)
- Button - moves to the previous mark point (in/out/bookmark)

- ***Add Zone*** button - marks the beginning of a zone. A yellow point appears in the trim bar.
- ***Delete Zone*** button - deletes the selected zone point.

- ***Open*** button will load a clip in the Trimmer window.
- ***Export*** button **-** opens a dialog box for exporting the trimmed clip as a file.

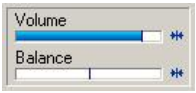
If you have divided the clip into several sections, they will appear in the **Export list** as different parts. Select which of them to export by checking the checkboxes in front the relevant section. Besides, you can change their order using the up and down arrows.
If you choose to export several parts at a time, you have to specify the way they should be exported: as separate files *(⦿Export selection(s) as multiple files)* or as a single file *(⦿Export selections as a single file)*.
Pressing the ***Export*** button in this dialog opens another dialog box for you to specify the file name and store location and to begin the export.

To delete a clip section, select it and press **<Ctrl>**+**<D>**.
To reset the original clip length, press **<Ctrl>**+**<BkSp>**.

The *Throttle* has three levels – Low, Normal and High. Each of them "tells" the CPU what priority to give to the export process.
The higher the priority, the slower the other simultaneously running processes on the machine, and the quicker the export made.

I.3. Volume Control

You can change the audio volume and audio balance of the clip, using the relevant sliders in the ***Clip Trimmer***. The new values will not take effect in ***AirBox*** playback. These sliders are used for convenience during the trimming process.



- *Volume* box – shows the volume level of the clip playback. There is a reset button beside the slider to restore the default value.

- *Balance* box – shows the clip playback L-R balance. There is a reset button beside the slider to restore the default value.

I.4. Status Bar

It is located along the lowest part of ***Trimmer*** window.

- The first field [Position] – shows the current timecode, when dragging over the trim bar.
- The second field [Zoom Frame] – shows the scale of the Zoom zone.
- The third field [Version] – displays the current ***Trimmer*** version.
- The last field shows the clip's filename and location.

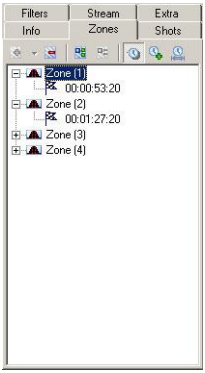
II. TRIMMER PAGES

There are six pages on the right side of the ***Trimmer*** Window: ***Info***, ***Zones***, ***Shots***, ***Filters***, ***Stream*** and ***Extra***.

II.1. Video Clip Info

This page shows important system stream information, extracted from the file. It contains:

- Filename
- Video compression type
- Video stream information: number of streams; image width and height in pixels; video frame rate; video bitrate.
- Audio stream information: number of streams; audio compression type; audio sampling rate; audio channels; audio bitrate.
- Type of *MPEG* packages
- Type of *PES* (packetized elementary stream)
- Mux rate (the multiplexing rate in bps)
- Duration of the clip in HH:MM:SS.ms (hours:minutes:seconds.miliseconds)



II.2. Clip Zones

This page is used for registering a set of timecodes (points) in the clip. Thus, you can mark an initial or final timecode of an important zone in the clip. For example, in each movie there are predefined commercial break points that might be used later for automated commercial slot insertion. Those breakpoints can be defined in ***Clip Trimmer*** as single split points or zones (blank/stills) that will be skipped, and a commercial slot will be inserted instead.

To add a **Zone**, set the cursor at the appropriate point and press the ***Add Zone*** button in the page or in the main window. A **yellow point** appears in the trim bar, showing the beginning of the zone. You can define different zone types, pressing the black arrow of the ***Add Zone*** button. It opens a button menu:

- **Bookmark** – creates a single split point at the current play head position. You can change the Zone name (Bookmark by default) and timecode manually.
- **Simple skip zone** – creates a two-point zone. The first point is the current play head position; and the second is 5 seconds later, by default. You can change the Zone name and timecodes manually.
- **Advanced skip zone** – creates a four-point zone. The first point is set at the current play-head position. By default the second point is 1 second later, the third point is 5 seconds later and the fourth point is 6 seconds later. You can change the Zone name (Advanced Zone by default) and timecodes manually.

To add a next marker in the **Zone**, press the ***Add Zone marker*** button. It will add a marker 10 seconds after the last marker in that zone, by default.

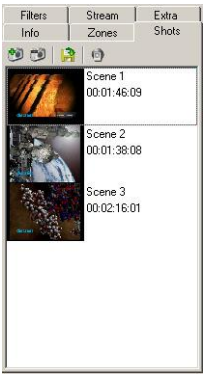
To delete a marker from the **Zone**, select it and press the ***Delete Zone marker*** button. It will delete all markers, except the first one, which can be deleted only by deleting the whole zone.

To delete a **Zone**, select it and press the ***Delete Zone*** button from the page or from the main window.

By pressing the Clock buttons, you can choose a display mode of the markers:

- **Time** – shows exact timecodes in HH:MM:SS:FF format
- **Offset value** – shows the interval between the current marker and the first one.
- **Duration** – shows the time difference between two consecutive zone markers.

II.3. Clip Shots



Use this page to extract shots from the video clip.

To create a shot, stop the play-head at the desired frame and press the ***Add*** button. The shot, as a thumbnail and its time-code are displayed in the tab. You can change the shot's name (Scene No., by default) manually.

To delete a shot, select it and press the ***Delete*** button.

To extract a shot to a file, select it and press the ***Export*** button. A browse window appears to select the file name, type (***.jpg** or ***.bmp**) and location.

To set a shot as thumbnail of a file, press the ***Thumbnail*** button.

II.4. Clip Streams

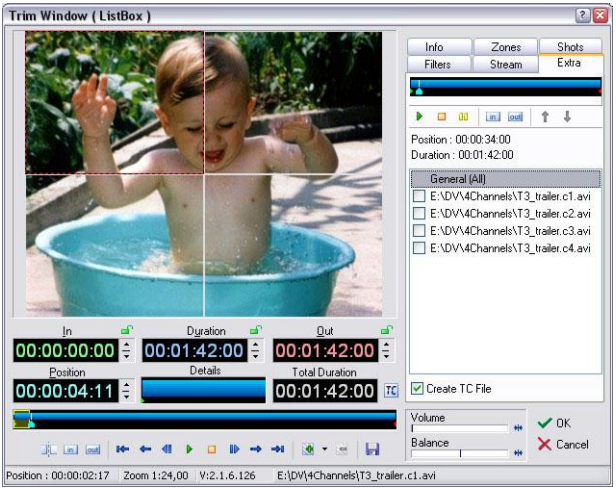
This feature is applicable in case the file contains more than one video and/or audio stream. Here you can choose which of them to view/listen during playback.

The check boxes ☑ in front the relevant streams show their playback status. The checked streams will be loaded in the playlist after clicking OK and will be played in their turn.

The green ticks serve for previewing the desired streams – if you click on the single tick, you will preview only the selected stream. If you click on the double tick, you will preview all the streams simultaneously. If you preview several audio streams, they will be mixed-up. If the streams are video, the preview window will split according to the number of streams (up to 32).

Use the blue arrows to move streams up and down the list.

II.5. Extra



This "extra" will help you in managing multiple monitor video wall systems of up to 16 monitors. The files that are usually used for video walls end in ***.c#.mpg** or ***.c#.avi** (for example ***.c1.mpg** or ***c3.avi)**. Just load the first file in the playlist. ***AirBox*** will detect the others automatically.

The trim bar and the buttons above the list of files are designed for control of the entire bunch. The trim bar and the buttons under the preview window are used for control of the currently selected monitor (the one in the red dotted-line frame).

This feature will help you in synchronizing the video wall and will allow you to control each monitor separately. You can also rearrange the display positions of files by drag-and-dropping the relevant squares in the preview window (i.e. file #1 can be displayed on monitor#3, etc.) or by using the blue arrows above the file list. The files in the preview window are arranged horizontally, in up to 4 rows of up to 4 files each. This means that if there are 16 files in the bunch (the most possible), the first row will contain files #1 to #4, the second one will contain files #5 to 8#, etc.

The ☑*Create TC file* check box is situated at the bottom of the file list. If you check this box, a TC file will be created automatically, saving you settings, such as *In* and *Out* points, file order, etc. Thus you will be able to use your settings again the next time you open the relevant file.

II.6. Clip Filters

This tab provides information about the filters that participate in playing the current clip and an opportunity for changing the filters' settings.

The Windows Registry contains a key [*HKEY_CURRENT_USER\Software\Digital Media Technologies Ltd.\PlayBox\2.0\DXPresets*] in which you could create your own string values, containing groups of preferred filters (presets). All filters of the currently selected preset are displayed in ***Filters*** page.

There is a legend at the bottom of the page:

The sign marks all filters from the preset.

The sign marks filters that are included in the preset, but do not participate in executing the current particular file.

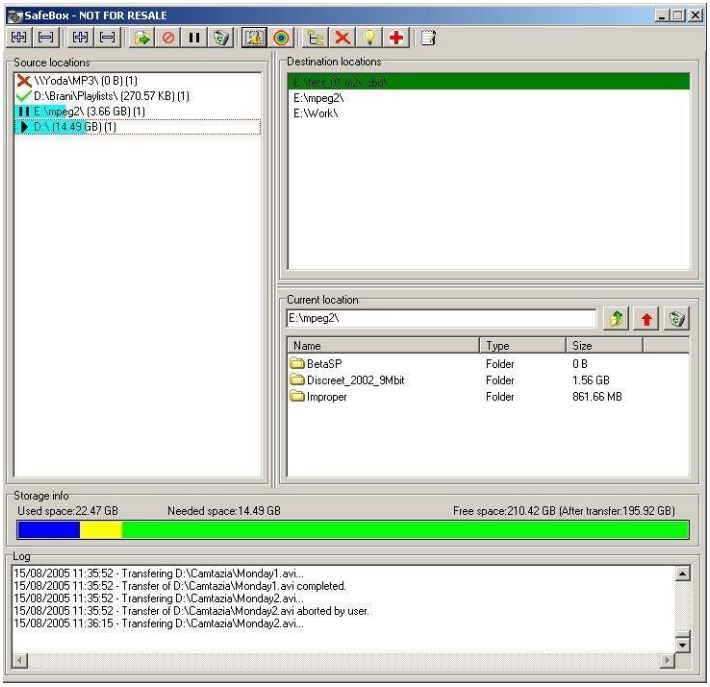
There is a ***Property*** button right under the tab name. Pushing it will open the property page (if any) of the selected filter. You could change the filter's setting there.

SAFEBOX

SafeBox is another module from the ***PlayBox*** suite, which serves as utility for file management. ***SafeBox*** takes care of moving, copying or deleting your files, automatically or manually. This is done following a number of pre-definable locations, priorities and rules.

I. User Interface

The user interface is quite simple: it is divided into two major parts – your *Source* and *Destination* locations:



Typically, the *Destination* is the location, from which ***AirBox*** is playing clips, but ***SafeBox*** can be used for copying all kinds of content you have – not only clips and playlists. The Destination location can be either on the local storage (from the point of view of ***AirBox***, for example) or somewhere on the network, but a local one is advisable. In short, these are permanently accessible storage destinations.

The *Source* locations are locations, where your files are stored or where files appear if you use some kind of removable storage or network connection. In short, these are temporary accessible locations. You can add to the list as many *Source* locations as you wish. This is done by simple browsing after pressing the ***Add*** button to the far left.

You can give priorities for each *Source* location. This is done by right-clicking on the relevant location and selecting the desired Priority.

NOTE: Priorities are valid only in *Automatic* mode! The highest priority is [10].

Along the upper part of the main window are situated the control buttons. The first pair of plus and minus signs is used for adding/deleting *Source* locations. The second pair is designed for the *Destination* locations.

Further on are situated the transfer control buttons. They provide hints at pointing at them.

SafeBox allows multiple assignments, i.e. you can transmit a given source content to more than one destination location: select a *Source location* (it will be marked in dotted-line frame) then select the desired online location in the list to the right. Press the ***Assign/Decline*** button. The assigned destination line will become green. You can view the assigned destination(s) of a source location by selecting its row. All destinations will go green. You can decline a destination location by pressing the ***Assign/Decline*** button once again.

After assigning all destinations, select one or more of the *Source* location and press button to start the file transfer manually.

The transffer could be canceled at any time by selecting the desired *Source* location and pressing the button. If you want just to pause/resume the transfer, press button.

Press button to remove content of the selected *Source* location.

Press the ***About*** button to check the information about the current software version and your dongle.

In case you need to generate a ***PlayBox*** Doctor report, press the Red Cross button to start it. Just fill-in the mandatory fields, everything else will be done automatically. You can read more about the ***PlayBox*** Doctor in the Basic ***PlayBox*** manual.

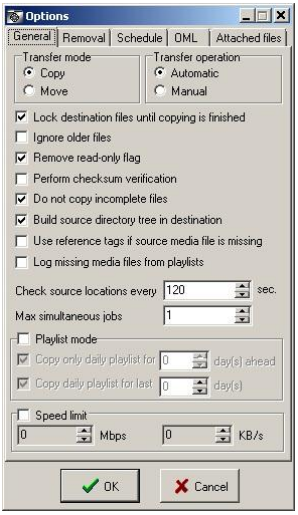
A ✓ sign in front of a given *Source* location means that it is currently accessible.

A ✘ sign in front of a *Source* location means that it is currently inaccessible. When a source location is being transferred, a symbol representing the currently executed action appears in front of it. A colored bar in its line displays the progress of transfer.

Along the lower mid-window is situated a colored bar that represents the distribution of the storage (Destination location) space. The blue section stands for *Used space;* the yellow one – the space needed for transfer of the selected offline content; and the green one represents the free space, which will remain after the transfer.

II. SafeBox Options

Set this in the **Options** menu after pressing the ***Options*** button.



➢ ***General***

The supported ***General*** options are listed here.

Transfer mode **–** select ⦿***Copy***, if you just want to copy files from *Source* location to *Destination* location and select ⦿ ***Move***, if you want to move the files.

Transfer operation - ***SafeBox*** could perform all necessary actions Manually (select ⦿ ***Manual radio button***) or Automatically. (select ⦿ ***Automatic***)

☑*Lock destination files until copying is finished* – this check will not "allow" ***AirBox*** to start playing out a file that is currently being copied. This will prevent unexpected end of the video when the copied part of the file is over.

☑*Ignore older files* – this means "Do Not Copy Older Files". Thus, if the same file has different "last modified" date on the Source and the Destination folder, and the Source file is older, ***SafeBox*** will not copy it to the Destination. ***SafeBox*** will log a message every time a newer file is replaced with an older file.

NOTE: This option is un-checked by default which means that ***SafeBox*** will overwrite the newer files in the Destination folder with older files from the Source folder!

☑*Remove read-only flag* will allow you to edit the content after its replication. If this box is not checked, the copied content will not be editable; you will not be able to delete it, either.

☑*Perform checksum verification* will check if the transferred files in the Destination folder are identical to those in the Source folder. Thus, you will be notified any time there is some difference between the source file and its copy.

☑*Do not copy incomplete files* will not transfer files that are currently open by another program or user.

☑*Build source directory tree in destination*. When ingesting content that contains folders and subfolders, SafeBox could proceed in two ways: preserve the tree-structure of the source location (if checked); or save all files from the source in a single folder (if not checked).

☑*Use reference tags if source media file is missing*.
SafeBox creates a "reference" tag to each media file into the playlist. In this tag is described the source location of each file.

For example, let in the source playlist there is a file ***\\network\e\mediafiles\filename.mpg***. Into the destionation playlist, there will be the same file, but with a local path – ***e:\on-air-files\filename.mpg***. Into reference tag ***SafeBox*** will put the information about the original location of the file (***\\network\e\mediafiles\filename.mpg***.).

Check ☑*Use reference tags if source media file is missing,* if you want ***AirBox*** to use the information from this reference tag. This will be very useful in case when the playlist is already loaded and started in ***AirBox***, but not all files are copyed to the destination location. This way ***AirBox*** can "read" from the "reference tag" where the original file is located, and can play it directly from this location, trough the network.

☑*Log missing media files from playlists*.

Check this check-box to see any information about missing files from source playlist. The information appears into ***SafeBox*** log-box

Below, into *Check source locations every…sec*, you can set the period of time for checking the source locations for new files. By default, this period is set to 120 seconds.

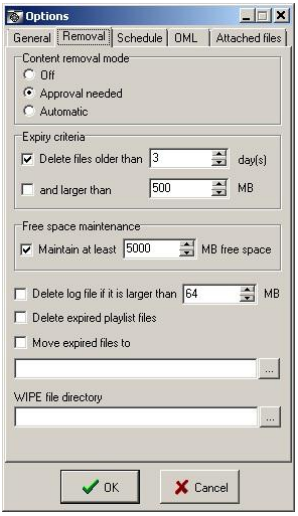
In the *Max simultaneous jobs* field you can set the number of transfers to be performed at a time.
NOTE: The higher this number is the slower transfer (for a separate file) will proceed.
NOTE: In automatic mode, simultaneous jobs are performed only for locations with equal priorities.

☑*PlayList mode.* In this mode, ***SafeBox*** will search the *Source* directory only for playlist files (*.ply*) and will copy/move them to the *Destination* directory. Besides, it will search for, and copy/move all the files contained in the playlist following their file paths. After copying/moving the files to the *Destination* folder, ***SafeBox*** will change their file paths in the playlist to match the *Destination* location, so that there is no need to change them manually.
NOTE: The playlist(s) and their related files will be copied/moved to the same *Destination* directory.

WARNING! Make sure to use real network paths when creating your playlists! Do not use mapped drives when pointing to the media files locations! Thus, you will ensure that all files needed for the playlists are visible from the SafeBox PC and will be copied properly. In order not to clog the *Destination* directory, you can check ☑ *Copy only daily playlists for…* box and specify the number of days in the spin-box to the right.

Check the ☑*Speed limit* box if you wish to change the process duration. Below, you can either use the spin-boxes to set the transfer rate, or type it directly in the relevant field. The values in the Mbps filed will be converted into KB/s automatically and vice-versa.
NOTE: The higher you set the transfer rate values, the higher CPU usage will occur.

➢ *Removal*



In the ***Removal*** options tab, you can specify the way ***SafeBox*** maintains file removal in the *Destination* directories. These options can be turned ⦿*Off* if not needed. If ⦿*Approval needed* is selected, you will have to go to the Removal list and delete the files you want from there. In the following field, you can set the expiry criteria for content removal:

If you check the ☑*Delete files older than…*box, all files will be deleted when the period you have specified is over. File modification date is used as a reference for the expiration date.
IMPORTANT: The number of days must not be less that 1 (one)!

If you check the box underneath as well, only files larger than the specified size will be deleted.
You could also manage files according to the free disc space on your computer:

☑*Maintain at least […] MB free space* will delete any files, regardless their type, in order to achieve the required space.

☑ *Delete log file if it is larger than …MB* – here you have to enter the maximum allowed size of the ***SafeBox*** log file. All files larger than this size will be deleted.

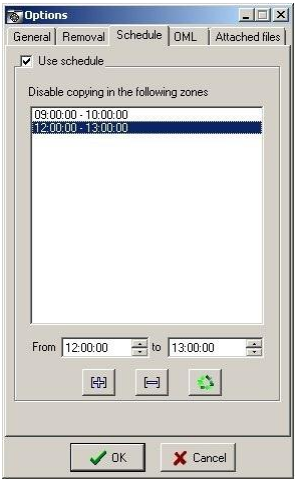
The next check-box concerns the management of playlist files (*.ply) that fit the expiration criteria.

If ☑ *Delete expired playlist files* is checked, all playlist files in the *Destination* directory that fit the expiration criteria will be deleted without notification. If not checked, the playlist files will not be deleted even if they have expired according to the criteria set above.

You can move all expired files to a specified folder. Just check ☑ *Move expired files to* and browse for the folder's location or enter its path in the string below.

NOTE: The removal list that controls all removal/move operations is updated each hour or at clicking ***OK*** in the **Options** dialog. Therefore, deleting and moving files will start about one hour after their expiry!

SafeBox can remove files according to predefined removal lists in *.csv* file format. Put your *.csv* removal files in a folder and browse for it in the *WIPE file directory* string. At detecting such a file in the WIPE directory, ***SafeBox*** will check whether the files listed in it are used in non-expired playlists. If yes, the files will not be deleted. If not, ***SafeBox*** will delete them automatically.

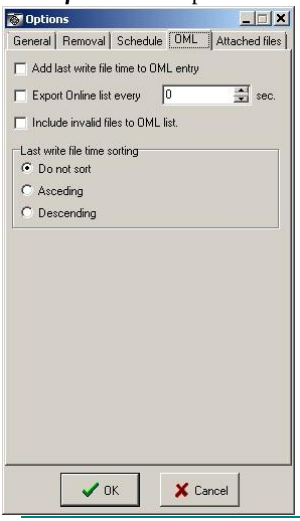


➢ ***Schedule***

You can control the time for file transfer according to your daily network traffic. This will helps you to avoid network overloading. In the ***Schedule*** tab, define the time slots when ***SafeBox*** should not perform file transfers.

Do not forget to check the ☑ *Use schedule* box.

➢ ***OML***



SafeBox can export OML files. Thus, you will be able to export information about the media stored on selected directories into a file (OML file). The OML file format can be either **.txt* or **.ply* (the ***AirBox*** native playlist format). Thus, you can open the exported **.ply* files directly in ***ListBox*** and build playlists via drag-n-dropping to another ***ListBox*** or directly to ***AirBox***

OML Options page is designed for automated export of such online media library files.

It contains several settings:

☑*Add last write file time to OML entry* – when this box is ticked, ***SafeBox*** will add the *Date Modifie*d property of all files as a separate column in the OML file.

☑*Export Online list every [xx] sec.* – here you can specify the period for exporting OML information to a predefined file.

☑*Include invalid files to OML list* – checking this check-bos allows including information for all media files into OML list, file information for all media files – valid or invalid

If you un-check this check-box, only valid media files will be listed into OML file.

Below, there are several sorting options:

⦿*Do not sort* – no sorting will be applied to the OML file.

⦿*Ascending* – the oldest files will appear on top of the list.

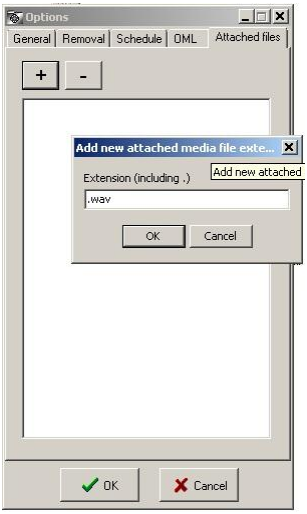
⦿*Descending* – the latest files (with the most recent date modified) will appear on top of the list.

- ***Attached files.***

In some cases, there are files related to the video file, like *.wav files for example, which have to be copyed to the destination location as well. You can add all such related files extention into Attached files tag.

Press aADD button to enter the extension. Do not forget the dot symbol (.) before the extension.

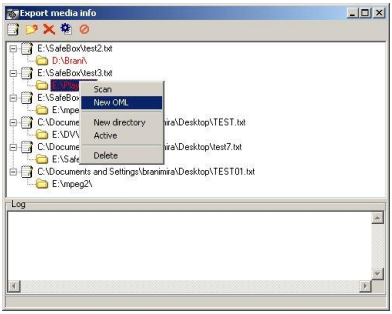
So every time when SafeBox copies some file, it will search for the related files with the same name and extention like these from the list here and will copy them also.



III. Export media Info

Push the ***Export media info*** button in the main ***SafeBox*** window to configure the directories you would like to scan:

Click on the ***Add New OML file*** button and browse for it (or type a new name in the string below).



Select the OML file and ***Add new folder*** to be exported to it. Use this button to add directories to the list, and the ***Delete*** button if you want to remove the currently selected directory from it.

Right-click and select **Active** to enable/disable the lines you would like to include/exclude from the current scan.

Push the ***Gear*** button to check the selected directories and export the information to the specified file.

Beneath the *Destination locations* list you can view detailed information about the currently selected entry. Its path is displayed in the *Current location* string and below are listed all sub-directories contained in it.

There are three buttons to the right of the *Current location* string. To browse for a new destination location, use the first one. Push the second one to go one level up the current directory. The third button will erase all the content from the selected *Destination location*.

MULTI AIRBOX MANAGER

Multi AirBox Manager is a web server application. It was designed to control multiple AirBox channels from within the same user environment or from a remote location – ***MAM*** supports a web-based interface from which web users can control all AirBoxes included in the MAM Monitoring list, depending on their user rights.

Multi AirBox Manager (also referred to as MAM hereafter) must be run on a computer in your LAN.

Local and remote ***AirBox*** channels are controlled equally well. The ***Multi AirBox Manager*** allows users to activate all playback commands and do some simple playlist editing (such as inserting/deleting playlist items, loading and saving new playlists). Thus, the ***AirBox*** interface will have to be invoked only for sophisticated playlist editing (inserting of events, clip trimming, etc.) and module setting.

I. GETTING STARTED

I.1. Installation

Where to Install it

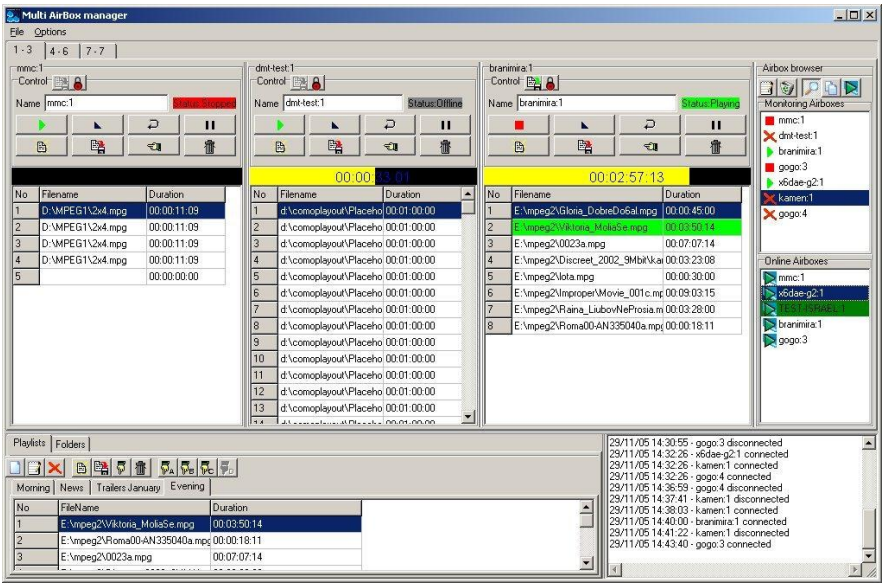
Multi AirBox Manager is usually installed on one of the computers in your local network.

WARNING! If there is a firewall that blocks UDP port 8080 or TCP port 80 either on the ***AirBox*** or on the ***MAM*** PC, ***MAM*** will not "see" any ***AirBox*** channels, neither local, nor over the network. Instant messengers could occupy TCP port 80. Therefore, you have to disable them prior to starting the ***MAM*** application.

I.2. Quick Start

Launch ***MultiAirBox Manager***;
Push the ***Add all online AirBoxes to monitoring list*** button;
Go to the control panel of one of the online ***AirBox***es;
Press ***Play/Stop*** or another button depending on your needs.

II. USER INTERFACE



The user interface comprises of several zones, all described in detail further in this section. The predominant part is occupied by the control panels of all ***AirBox*** modules currently added for monitoring in the Manager. They are arranged in tabs, four AirBox channels per tab. Each tab caption contains information about the channels included in it. If you go to **Options** menu and select **Show online AirBoxes**, the field to the far right will change to a global ***AirBox*** management panel, called AirBox Browser (*see the next page*). The lower right section of the window is dedicated to Channel connection logging, and the remaining part to the left represents the content bin.

TIP (!) You can join the Monitored ***AirBoxes*** in groups. Thus, a command sent to any ***AirBox*** in the group will apply to all other members as well.

To add an ***AirBox*** to a group, right-click in its line in the *Monitoring* list and select **Group ➔ Group#** (1 to 10).

II.1. AirBox Browser

This part of the interface is dedicated to global management of all ***AirBoxes*** in the network. It is divided into two smaller windows, Online ***AirBoxes*** and Monitoring ***AirBoxes***.

The *Online AirBoxes* list displays all ***AirBox*** channels detected over the network (responding to UDP port 8080). You can show/hide this list by pressing the ***Show online*** button. Select the ***AirBoxes*** to be added to the Monitoring list and press the ***Add Selected*** button; or add all of them by pressing the ***Add All*** button.

You can try to connect to a PC from the *Online AirBoxes* list manually. Just select the relevant line in the list and press ***Connect to selected***.

Moreover, you can add IP addresses manually – just press the ***Manually add…*** button and then describe the PC location.

Enter the Instance number in the lowest spin-box if there are more than one ***AirBox*** channels on the machine.

If you wish to remove some ***AirBox*** channel from the monitoring list, select it and press the ***Delete*** button.

The *Monitoring AirBoxes* list contains all ***AirBox*** channels ever added for monitoring (and not removed yet). It also displays their current status: Playing, Stopped, Offline (which means that the relevant ***AirBox*** is not running). If any of the ***AirBox*** machines does not respond correctly, the following sign will appear in front its name in the Monitoring list: .

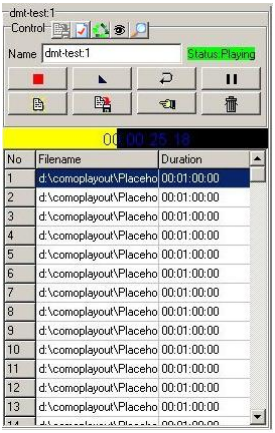
The lines of all ***AirBox*** channels that are not included in the *Monitoring AirBoxes* list will be colored green in the *Online AirBoxes* list.

(!) TIP: You can group/ungroup ***AirBoxes*** in the monitoring list by right clicking in them and selecting a group from the drop-down list. Thus, all commands that are sent to a channel that belongs to a group will be applied to all other channels in the same group.

(!) TIP: If you double-click an ***AirBox*** channel in the *Monitoring AirBoxes* list, ***MAM*** will open its tab for viewing.

II.2. AirBox control panels

All AirBox channels that are loaded for monitoring can be controlled through separate panels grouped in tabs. Originally, each tab contains four ***AirBox*** control panels, but if you choose to view the Channel browsing window in the far right of your MAM window, the number of control panels per tab will reduce to three.



You can edit reads the PC name and the instance number in the **Name** field. Above it are situated several buttons:

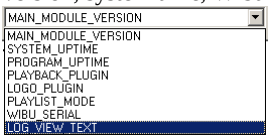
Activate local AirBox will show the main ***AirBox*** window of the selected channel as long as it is activated on the MAM machine. Thus, you can switch easily between the MAM interface and the local ***AirBox*** channels.

Playlist lock will keep the selected playlist locked for modifications.

Refresh playlist will refresh the playlist.

Reset counter frames – it will reset the size of the counter's window.

Show/hide info – press it to see a list with additional information for current ***AirBox***, like AirBox version, system time, Wibu dongle serial number, etc.



Select from the list and in the window below will appear the needed information, instead of the playlist.

Note: The list of additional parameters is available only for ***AirBox*** versions later than ver. 4.0.77 (b. 990)

Press the button again to go back to the playlist view of the panel.

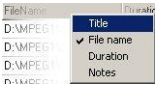
Under the **Name** field you will find several buttons providing simple playback and playlist-management commands.

All buttons provide hints.

NOTE: Like in ***AirBox***, you will not be allowed to insert clips into an already passed point of the playlist.

A progress bar is situated below the playlist control buttons. It corresponds to the Clip Timer in ***AirBox***. However, unlike in ***AirBox***, it cannot be switched to count-down mode.

The predominant part of each channel control panel is occupied by a reduced copy of the playlist. It contains only two columns. You can select what data to be displayed in them by right-clicking in the columns' headers and selecting from the drop-down list.



(!) TIP: If there is an event in the playlist, select Title to view its description. Otherwise it will appear as a blank row in the playlist.

(!) TIP: You can change the positions of playlist items by drag-n-dropping them. Besides, you can copy playlist items by holding down the <Ctrl> key while dragging up/down the playlist.

All missing clips (that are not accessible from the relevant ***AirBox*** PC) will be colored in red. The currently playing clip is colored in green, and the currently selected clip will appear in dark-blue.

II.3. Content Bin

The content bin occupies almost the entire lower part of the interface. It contains two tabs – Playlist and Folders. You can drag-n-drop items from the bins to the ***AirBox*** control panels above.

In the ***Playlists*** bin you can manage all playlists available in the network and add items from these playlists in the control panels above. In the web interface you will be able to see only the playlists contained in this tab. Therefore, add all playlist you'd like to view from a remote location here.

NOTE: The playlist editing rights in the web interface depend on the User account.

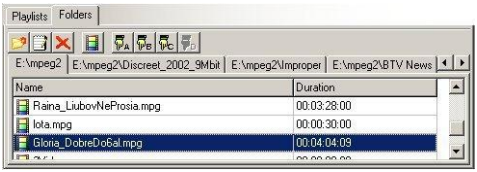
The ***Add new*** playlist button will create a new tab in the ***Playlists*** bin while the ***Load playlist*** button will open the selected playlist in the currently open tab. You can change the name of the currently selected playlist after pushing the ***Rename*** button.

To delete a tab from the bin, press the ***Delete*** playlist button.

To save the playlist in the current tab a new file, press the ***SaveAs*** button.

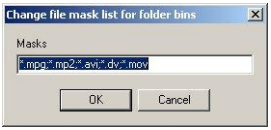
If you want to add clips to the currently open playlist in the bin, press the ***Add clips*** button. To delete the currently selected clip from the playlist, press the ***Delete clip*** button.

Instead of drag-n-dropping clips from the bin to the ***AirBox*** control panels, you could use the relevant ***Add selected*** button. Thus, if you press the ***A*** button, ***MAM*** will add the currently selected clip to ***AirBox*** channel A above.



In the ***Folders*** bin, you can bookmark your content-containing directories and view the files in them. The content of each directory will be displayed in a separate tab. You can rename the caption of each tab after pushing the ***Rename*** button.

Use the ***Set file mask*** button to view only certain file types. In the Change file mask dialog, specify which file types you would like to see in the Folders bin.

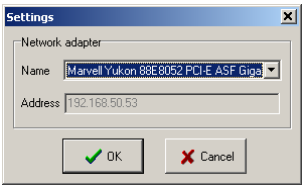


You can list more than one file extensions, dividing them by semi-colons. If you add *.ply to your file mask, you will be able to view the native ***AirBox*** playlist format in the folders bin. Then, you can drag-n-drop whole playlists and append or insert them in the relevant ***AirBox*** control panel. Instead of drag-n-dropping, you can use the ***Add selected*** buttons.

II.4. Menu Bar

Currently there are the following items in the **Options** menu:

Reset all AirBox panels – resets all the panels.



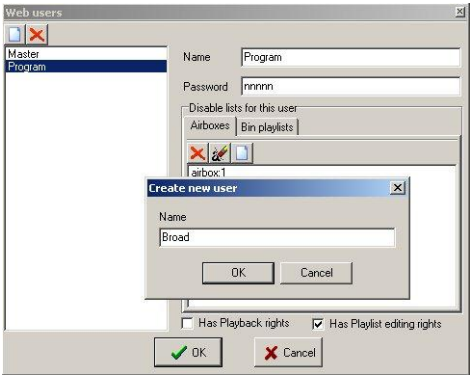
Settings – click in this menu item to select the LAN card to be used for the connection.

Into Name field, you can see the list of available network cards on your machine. When you can select a card, its IP address appears into the Address field below.

Lock playback control – locks the playback control for all ***AirBox*** panels.

Web control – check it in order to access the ***Multi AirBox Manager*** from a distant location trough web interface.

Web Users – this is the tool for creating and managing users' accounts. These are needed when accessing the ***Multi AirBox Manager*** from a remote location (see the web interface description below). The following dialog opens at selecting this Options menu item:



Click the **Add new** button in the upper left corner and enter the user name. It will be displayed in the *Name* string after clicking ***OK***. Type the password for this user in the *Password* string. Then, define his access rights in the field below. There are two tabs and two check-boxes in it. Use the check-boxes to define the playback and playlist editing rights. Then, create a list of restricted ***AirBox*** channels/ playlists in the two tabs:

AirBoxes – create a list of ***AirBox*** channels that must be inaccessible to this user. You can add them from the drop-down list that appears on clicking the ***Add AirBox to disable list*** button. Use the next button to remove the selected ***AirBox*** channel from the disable list. The third button will clear the whole disable list.

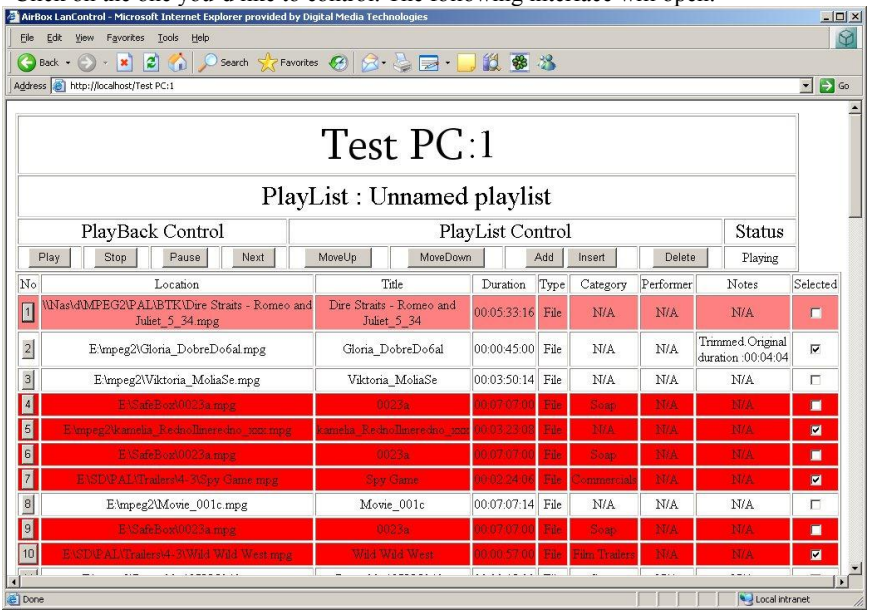
Bin playlists – in this tab you can create a list of prohibited playlists. All playlists available in the Playlists tab of the Content Bin will be displayed in a drop-down list at pressing ***Add Bin playlist to disable list***.

III. WEB INTERFACE

In order to access the ***Multi AirBox Manager*** from a distant location, you will need the user name and password set in the Options menu. Also you hate to check **Web control in** Options menu.

After you log-in to the ***Multi AirBox Manager***, a list of all ***AirBox*** channels once added to the Monitoring list will be displayed.

Click on the one you'd like to control. The following interface will open:



In it, you can perform simple playback control and playlist editing. The [Selected] column in the far right contains check-boxes. The playlist control commands (such as Move Up/Down and Delete) are applied to the checked clips.

NOTE: When inserting items, they will be put before the uppermost checked line. If there are no checked lines, a dialog will remind you to select an insertion point.

The columns' arrangement in the web interface is fixed and does not depend on the ***AirBox*** settings.

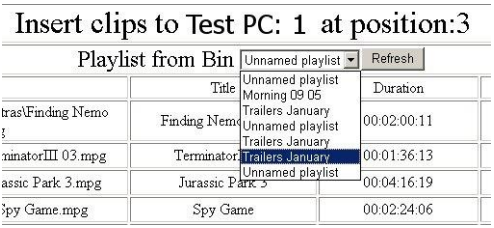
All missing clips (that are not accessible from the relevant ***AirBox*** PC) will be colored in red. The currently playing clip is colored in pink.

Pushing the ***Add*** button will open a new window where are listed all playlists contained in the ***MAM content bin***, in the **Playlists** tab:

Select the playlist you need from the drop-down menu. Its content will be displayed below. Check the clips you would like to add and click the ***Add selected clips*** button in the bottom of the page.

Pushing the Insert button will open another window, similar to the one above. It also contains a list of all playlists from the Playlists tab in the MAM Content bin.

Select the playlist you need from the drop-down menu and then check the clips you would like to insert. Finally, click the Insert selected clips button in the bottom of the page.



TIP (!) If you want ***AirBox*** to JUMP to a clip immediately, click on the number in front of its line.

ALARMBOX

AlarmBox is an alert messaging notification system. It receives system messages from other ***PlayBox*** modules (***AirBox, CaptureBox, TitleBox)*** and if some of these modules behaves up to predefined rule, ***AlarmBox*** provides a notification message to the User. The notification could be sent via e-mail, SMS, SNMP (Simple Network Management Protocol) or by internal ***AlarmBox*** messaging system (***MonitorMessages*** application).

The ***AlarmBox*** is consisting of three main parts - ***Input Plug-ins, Distribution Manager*** and ***Output Plug-ins***.

The ***Input Plug-ins*** corresponds to ***PlayBox*** modules which are under monitoring (***AirBox, CaptureBox***, ***TitleBox***). Each ***Input Plug-in*** "communicates" with the related module and builds up a communication XML messages. Further these messages are sent to the User.

The ***Output Plug-ins*** corresponds to the methods of sending the notification to the User – via e-mail, via sms, via SNMP, or via internal messaging. For each method, there is a different plug-in.

The ***Distribution Manager*** is the Core of the ***AlarmBox***. It provides the distribution of the incoming from ***Input Plug-ins*** messages to one or all of the ***Output Plug-ins***, in order the User to be notified .The message is sent **only** if it corresponds to a specific predefined condition (**Rule)**.

For example, you can create a rule to receive messages only if ***AirBox*** stops, or only if a specific file from playlist is played, etc.

I. GETTING STARTED

I.1. Installation

Where to Install it

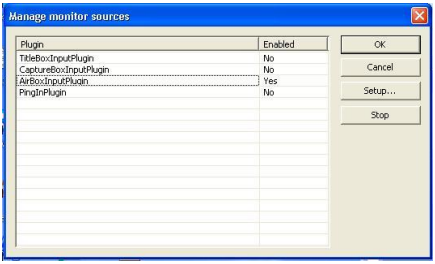
AlarmBox is usually installed under folder **C:\Program Files\PlayBox Technology Ltd\AlarmBox**

AlarmBox icon appears in Toolbar .

II. USER INTERFACE

The AlarmBox main window contains the following sections: **Monitor sources, Message Destinations, Rules, Named Values.**

II.1. Monitor Sources



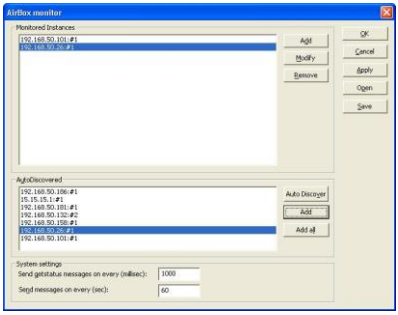
Into **Monitor Sources** window, there are listed the ***Input Plug-ins***, i.e. PB modules which could be monitored. Select a ***Plug-in*** row and double-click the **No** to the right to turns it to **Yes**, in order to make this ***Plug-in*** "enabled".

Press the ***Setup*** button to make the needed settings. A Setup window will appear. Here you have to specify the IP address and port number of the machine where the needed ***PlayBox*** module is installed.

The default port number for ***CaptureBox*** is 7803

The default port number for ***TitleBox*** is 8015

You can add, modify or remove monitored instances by pressing corresponding **Add, Modify** or **Remove** buttons.



For ***AirBox***, the setup window is a little bit different.

In the bottom of the window, there is an ***AutoDiscover*** field. After pressing the **AutoDiscover** button, you can see in here the IP addresses of all ***AirBox*** channels started in your LAN. Select one or more of them and press **ADD** button to move the IP address to the Monitored Instances area.

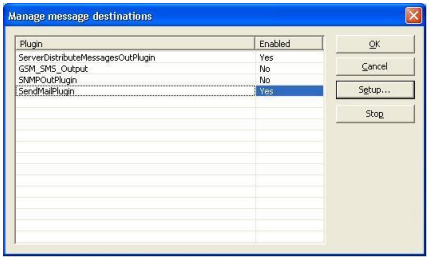
There are two system settings available:

- ***Send getstatus messages on every*** **(msec)**-period of time in milliseconds for checking the rule;
- ***Send message on every*** **(sec)**-period of time in seconds for re-sending the notification message.

II.2. Message Destination

Here are described the ***Output Plug-ins***. ***Output Plug-ins*** are different methods for sending the messages to the Users.

The available methods are: **Server distribute Messages Out Plug-in** (sending a message via an internal messaging application)**; GSM/SMS** (sending a message via SMS)**; E-Mail** (sending a message via e-mail)**; SNMP** (sending a message by using Simple Network Management Protocol).



Select the desired method of notification and double-click the **No** to the right to turns it to **Yes**, in order to make it **Enable**. Then press the **Setup** button to make the needed settings for each method.

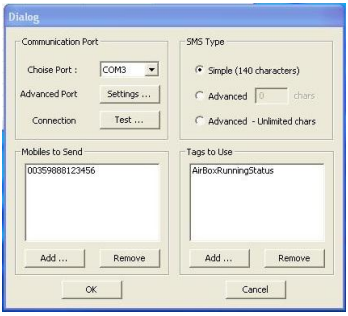
Note: You can select more than one method for notification.

- **Server distribute Messages Out Plug-in Setup -**This Plug-in starts an internal messaging application, wich shows the text messages in a separate window on user's PC.

Into the setup dialog, you have to select a listening port number. By default it is 1786

Important: In order to receive and read the messages sent with ***Server distribute Messages Out Plug-in***, you have to run the **MonitorMessages.exe** file. Starting this *exe* file will open the text messaging window, where you can see the messages. **MonitorMessages.exe** file could be finding in ***AlarmBox*** installation folder. You can copy and run it at each machine into your LAN.

- **GSM/SMS Plug-in Settings**



In this setting dialog, you have to specify the **Communication Port** firstly**.** Choose the port number, where the gsm-modem is plugged from the drop-down list in the beginning.

Press **Advanced Port Settings** button, to add more settings like **Bits per second, Data bits, Parity, Stop bits** and **Flow control**.

Into **Mobiles to Send** area, add the gsm number to which you want to send a massage. Add new number by pressing **Add** button or remove a number by pressing **Remove** button at the bottom of this area.

Press **Test connection** button to test the connection to the selected number. An additional dialog will open with information about the connection status.

Into **SMS Type** area, specify if the SMS Type is **Simple** (140 characters), **Advanced** (with user defined number of characters) or **Unlimited Advanced** (without limitation of chars).

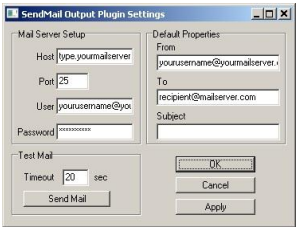
Into the **Tags to Use** area, you have to enter the **rule condition property**, set into **Rules Administartion-> *Conditional operations*** window.

For example, if there is a rule: *If* AirBoxRunningStatus *is stop, send a gsm/sms"*, the conditional property here is *"***AirBoxRunningStatus".** The same conditional property, you have to enter into **Tags to Use area.**

To add a new "tag"(conditional property), press the **Add** button at the bottom. To remove a tag, press the **Remove** button.

Note: GSM/SMS Plug-in is available only under **Windows XP** installation.

- **SendMail Plug-in Settings**



In this setting dialog, you have to specify the **Mail Server**, which is used for sending the mails – **MailServer Host name; Port number; Username** and **Password**.

Into **Default Properties** area, you can enter your mail address (or the mail address which you want to be visible as **Mail From**) and the recipient mail address (**Mail To).** You can enter more recipient addresses, separated by semi-colon (;).

You can check the settings by sending a test mail. Just press the send Mail button. A window with mail status information will appear.

- **SNMPOutPlug-in Settings**

If you intent to use **SNMP OutPlugin**, you have to have **Simple Network Management Protocol** (SNMP) installed on your mashine.

II.3. Rules

In the ***Rules*** section you must define all rules as per which the notifications for the users will be sent.

Press the ***Add*** button to add a new rule. Enter the name of a rule into appearing box. Then select this rule and press **Modify** button to specify the condition.

If you want to remove a rule, press the

Remove button.

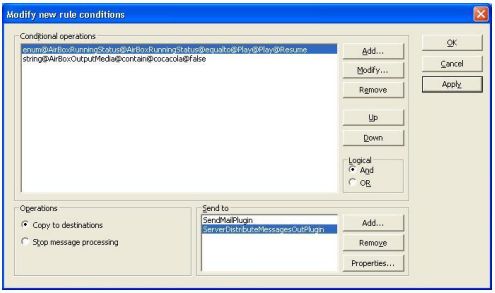
If you want to rename a rule, press the ***Rename*** button.

Each rule in the list has a different priority for its execution, depending on its position in the list. The first line in the list is with highest priority, the last line is with the lowest priority. ***AlarmBox***, "checks" and executes the rules as per their priority

If you want to change the priority order, just use the ***Up*** and ***Down*** buttons to move rules up and down into the list.

The ***Open*** button allows you to browse for already created rules (*.xml files) and to load them. And the ***Safe*** button - provides an option to save the modified rules.

To edit a rule, select it and press the ***Modify*** button. The following window will open:

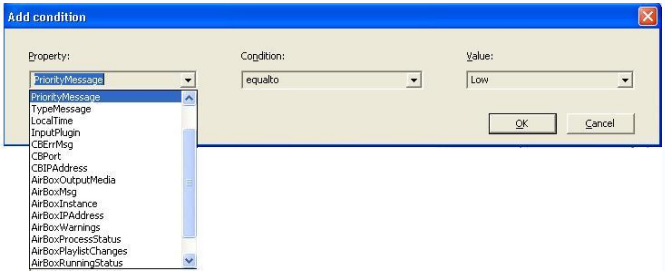


There are three sections here: ***Conditional operations***, ***Operations*** and ***Output Plug-ins***.

First you have to define a rule condition into **Conditional operations**. Than you have to specify what **Operation** to be performed, if the rule is true – *copy to destination* or *stop massaging*. And finally, you have to specify what **Output plug-in** to use for sending the message to the user.

- ***Conditional operations***

Here is the list of all rules conditions. To add a new condition, press the ***Add*** button. The following dialog will open:



Into ***Property*** field, you have to select one of the possible predefined properties for the ***Input Plug-ins.***

For each Property you have to set a ***Condition*** (equal, contain, beginwith, endswith) and a ***Value***, by using the relevant strings.

The available **Properties** are:

- TBErrMsg – ***TitleBox*** system messages. The possible messages are "Live" or "Error"
- TBIPAddress – ***TitleBox*** IP address
- TBPort – ***TitleBox*** port number
- PriorityMessage -this is the priority of the routing message, coming from the Input Plug-in. This Priority must be already specified in that xml message.
- TypeMessage -there are three types of messages: ***Warning, Error*** or ***Info***. They are described in ***Nemed Values*** section.
- Local Time- PC system time;
- InputPlug-in -the corresponding ***Value*** must contain the name of the ***Input Plug-in***, providing the message;
- CBErrMsg – ***CaptureBox*** system messages
- CBIPAddress – ***CaptureBox*** IP address
- CBPort – ***CaptureBox*** port number
- AirBoxOutputMedia – the name of the played from ***AirBox*** media (file)
- AirBoxMsg – ***AirBox*** system messages
- AirBoxInstance – ***AirBox*** Instance number. It is used, when there is more than one instance of ***AirBox*** started.
- AirBoxIPAdress – ***AirBox*** IP address
- AirBoxWarnings – ***AirBox*** warning messages. For now only message for "missing media" is available.
- AirBoxProcessStatus – current ***AirBox*** application status – alive or not alive
- AirBoxPlaylistChanges – changes in the playlist: delete, add, etc.
- AirBoxRunningStatus – ***AirBox*** running status: play, stop, pause, etc.

You can select as much conditions, as you wish. All of them will appear in the conditional operation list. It is possible to use logical (Boolean) operands here.

If the radio-button ***And*** is selected, than there is a Boolean **AND** valid for the condition list, i.e. all conditions in the list must be true, in order ***AlarmBox*** to execute a defined operation.

If the radio-button ***Or*** is selected, than there is a Boolean **OR** valid, i.e. it is enough only one of the conditions to be true.

➢ *Operations*

The ***Operations*** section provides you a choice to select what ***AlarmBox*** will do in case the condition (conditions) defined above is true.

If ***Copy to Out Plug-ins*** is pressed, the message, coming from the input ***Plug-in*** will be sent to all the ***Plug-ins*** you have set in the ***Out Plug-ins*** section. When the ***Stop***

Message Processing is pressed, the generated from the ***Input Plug-in*** message won't be transferred to the selected ***Output Plug-ins*** in case the specified conditions are true.

- ***Out Plug-ins***

Here you have to select how (by usage of which method) the message will be sent to the user, if a rule is true.

Press **Add** button and select as many of the available ***Plug-ins*** as you want.

Example: If you want to create a rule for receiving a mail whenever ***AirBox*** stops, you have to make the following:

II.3.1.1. In Rules section, press **Add** button and enter the name of the rule (e.g. "stop"), to create a new rule.

II.3.1.2. Select this new rule and press **Modify** button.

II.3.1.3. In ***Modify condition*** window, press **Add** button, to open a new condition window.

II.3.1.4. In ***Property*** field, select "**AirBoxRunningStatus**", in ***Condition*** field select "**equalto**" and in ***Value*** field select "**stop**".

II.3.1.5. Press ok and go back to the ***Modify rule condition*** window. In ***Send to*** area press **Add** button. Select "**SendMailPlug-in**".

Now you have a rule: *"If **AirBox** stops send a mail".*
So, when ***AirBox*** stops, the user will receive a mail.
Of course, it is needed also to enable ***AirBox Input Plug-in and Mail Output Plug-in***.

II.4. Named values

Here are described ***TypeMessages*** and ***PriorityMessages***.

TypeMessages are **Warning**, **Error** and **Info** To each type is associate a rating number, which appears in the notification message sent to user. You can change this number.

PriorityMessages are **High, Normal** and **Low**. To each value is associate a rating number, which appears in the notification message, sent to user. You can change this number also.

TIMESHIFTBOX

TimeShiftBox is a solution providing accurate program time delays. The delay could be from a minute to a week or more.

TimeShiftBox technology combines two major activities - capturing of the source video and playback of the captured file. The source video is captured in a temporary file. After the defined by user period of time (i.e. after shifted time), the playback of the temporary file starts.

All old temporary files are deleted automatically from the system.

I. GETTING STARTED

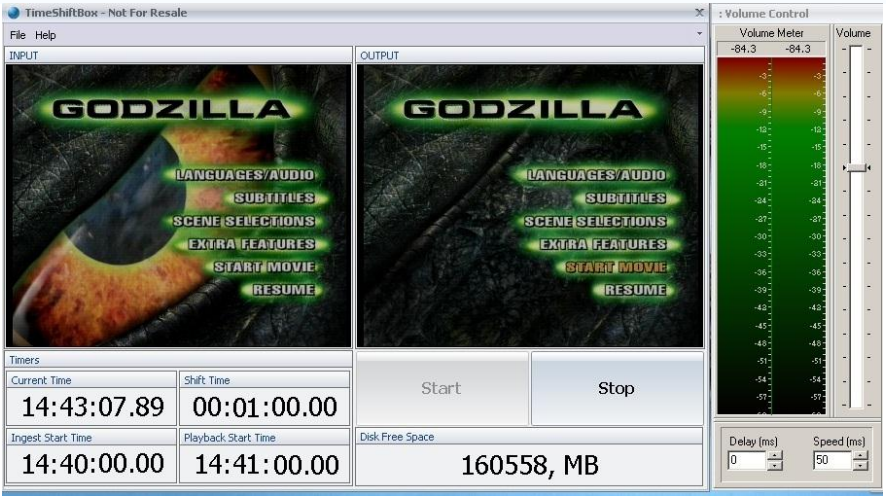
I.1. Quick Start

Note: In order to install and run ***TimeShiftBox***, you have to have two BMD DeckLink cards installed on your machine.

Launch ***TimeShiftBox.***
Go to ***File->References*** and enter the needed **Shift time**.
Go back to main window and press ***Start*** button.

II. USER INTERFACE

The main part of ***TimeShiftBox*** user interface is occupied from the *INPUT* and *OUTPUT* preview windows. The *INPUT* window shows the software preview of the original video signal and the *OUTPUT* window shows the preview of the shifted (delayed) video.



Below the **Input** window, there are four timers:

Current Time – this timer shows the current system time;

Shift Time – this is the time delay interval set from the user. Into the screen-shot ex above, the delay time is one minute.

Ingest Start Time – this is the time when the ***TimeShiftBox*** starts;

Playback Start Time – this is the start time of the delayed (shifted) playback. It is equal the *Ingest start time* plus *Shift time*.

In our example from screen-shot: 14:40:00.00 + 00:01:00.00 = 14:41:00:00

Note: The time format in all timers is: HH:MM:SS.ms

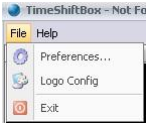
Below the Output window, there are **START** and **STOP** buttons. Press **Start** button to start time shifting and **Stop** button to stop it.

TimeShiftBox captures the incoming video into a temporary file and then plays out this file with a delay set by user. The available free disk space for capturing the temporary file is visible at *Disk Free space* window.

VolumeControl meter shows the audio volume of the output audio.

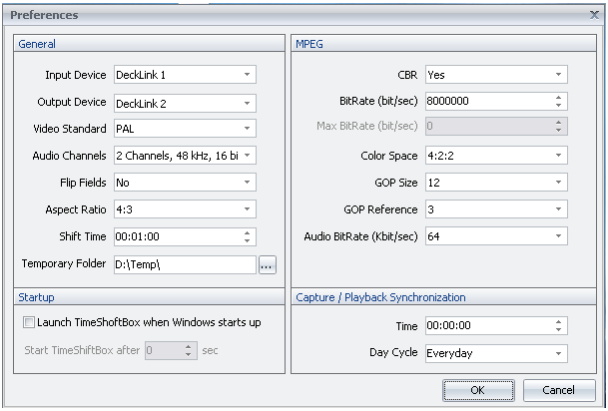
You can control it with the [+] and [–] numeric keys on your keyboard, or just by dragging the slider. The colored field in the window is a *volume & peak meter*. The green band shows the **peak levels** and the black line inside it, shows the actual sound **volume**.

III. Menu



Press **File** from menu bar, to see the available settings: *Preferences* and *LogoConfiguration*.

- **Preferences:**



The ***General*** preferences here are the *Input device* (the device which captures the source video) and *Output device* (the device which plays the shifted video); the *Video standard* of the source video; number of input *Audio channels*; *Aspect Ratio* of the source. You can also choose to flip the fields from original source or not to flip them into *Flip fields* field.

The most important parameter that you have to define here is *Shift time*. *Shift time* is a period of delay for the playback.

NOTE: The minimum shift time is 1 (one) minute.

Temporary folder is a folder for capturing the temporary files.

Into the *Preferences* window, you can define also some standard ***Mpeg*** settings for the temporary file.

Capture/Playback synchronization settings.

It is possible to define a time cycle for performing an internal check for synchronization between source video capturing and shifted video playback. If any problem found, the system activates an internal mechanism for synchronization.

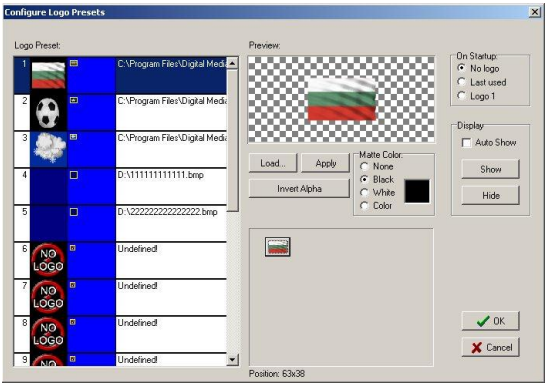
The user can only define how often to perform this check. Fill the time of a day into *Time* field and the day from a week (or Everyday) into *DayCycle* field.

Check *Launch TimeShiftBox when Windows starts up*, to start ***TimeShiftBox*** on Windows start. Into*StartTimeShiftBox after […] sec* field, enter some delay as the system might take some time for initialization. Increase the delay to ensure that ***TimeShiftBox*** will not start before the hardware initialization.

- **Logo config:**

In this configuration dialog, logo images are set for displaying in ***TimeShiftBox*** (their position on the screen, transparency, etc.).

The usage of Logo is the same as in ***AirBox***. For more information, you can read AirBox->Settings->Logo section.



APPENDIX 1 – PlayBox GPI

(GENERAL PURPOSE INTERFACE)

GPI in AirBox

GPI (General Purpose Interface) is implemented in ***AirBox, TitleBox and CaptureBox*** as a set of triggers, associated to certain pins on the standard *PC RS-232* Serial Ports (*COM1*, *COM2*, etc.). In order to function, the *COM* port should be correctly installed in the Windows environment (See Device Manager → Ports).
GPI-IN can be used to slave ***AirBox, TitleBox*** and ***CaptureBox*** to triggers from external devices or simple contact switches, 4 triggers per COM port.
GPI-OUT can be used to slave external equipment to events taking place in ***AirBox*** or ***TitleBox***, 2 triggers per COM port.

GPI Pinout

Each *COM* port accommodates 4 **GPI-IN** pairs and 2 **GPI-OUT** pairs, but not at the same time. A particular *COM* port can be assigned as either **IN, OUT** or **Unused**.

GPI-IN pairs are located at output pins *DTR&RTS* and input pins *DSR, CTS, RI, CD*. You can use any of the output pins for supplying voltage to the GPI circuit.

GPI-OUT pairs are located at output pins *DTR&RTS*, the first GPI trigger generates a pulse on *DTR*, and the second *GPI* trigger generates a pulse on *RTS*.

GPI-IN Implementation

The simplest triggering device would be a pair of wires running from the *COM* port *GPI* pair, soldered to a momentary contact switch. This switch can be either **Push Button Normally Open** (PBNO) or **Push Button Normally Closed** (PBNC). The trigger type is configured in *AirBox GPI Settings Panel* as **High** or **Low** pulse. Many external devices like switchers or mixers have dedicated *GPI* connectors or screw terminals with a description of what *GPI* trigger type (low or high pulse) was implemented. Depending on the trigger setup, a trigger can be a temporary closing or opening of the *GPI* circuit. High pulse means the *GPI* trigger is activated when the circuit is temporary closed. Low pulse means the *GPI* trigger is activated when the circuit is temporary opened.

According to the number of installed *COM* ports, ***AirBox*** supports up to 32 **GPI-IN** triggers (up to 8 *COM* ports with 4 **GPI-IN** triggers per port).

GPI-OUT Implementation

In order to control external devices by *GPI*, a simple 12V contact relay should be used. It should be connected to the corresponding *COM* port pin pair (4-6 or 7-8) and it should close or open the *GPI* circuit of the external device. Depending on the ***AirBox*** setup, the *GPI* trigger will generate a pulse (low or high, user-defined) to the corresponding output pin for a short user-defined period (pulse duration).

According to the number of installed *COM* ports, ***AirBox*** supports up to 16 **GPI-OUT** triggers (up to 8 *COM* ports with 2 **GPI-OUT** triggers per port).

AirBox as a GPI Slave

A wide variety of ***AirBox*** actions can be associated to a *GPI* trigger:

- Start playback
- Pause/Resume playback
- Stop playback
- Jump to next clip
- Jump to specific clip (predefined playlist index)
- Jump to specific location in the clip/playlist (predefined timecode)
- Playlist reset (during stop mode only)
- Hardware reset (terminates the playback!)
- Turn logo on
- Turn logo off
- Cue the selected clip
- Cue to specific clip
- Jump to bookmark in time range
- Jump to bookmark name

AirBox as a GPI Master

AirBox can activate a *GPI* trigger though specially designated GPI Output event. Please check the following page for GPI Output reference.

AirBox GPI Settings Panel

All **GPI-IN** triggers can be assigned to a specific ***AirBox*** action. From *AirBox Settings* ➔ *Modules* ⇨ *Remote Control*, select "GPI Input" **enabled**, to allow the **GPI-IN** trigger. Press the **Configure** button, to invoke a table for setting the *COM* ports, GPI groups and the available actions for them.

All **GPI-OUT** triggers can be activated by specific ***AirBox*** event: From *Settings* ➔ *Modules* ⇨ *Remote Control*, select "GPI Output" **enabled**, to allow the **GPI OUT** trigger. After that you can Add/Insert GPI Output event in the playlist, by right mouse clicking.

RS232 9-pin D-SUB pinout reference

Pin	Name	Description	Direction
1	CD	Carrier Detect	In
2	RXD	Receive Data	In
3	TXD	Transmit Data	Out
4	DTR	Data Terminal Ready	Out
5	GND	System Ground	-
6	DSR	Data Set Ready	In
7	RTS	Request to Send	Out
8	CTS	Clear to Send	In
9	RI	Ring Indicator	In

GPI INPUT Reference

(Triggers that control ***AirBox, TitleBox***, and ***CaptureBox***)

GPI Input	Name	Contact Pins
GPI 1	CST	8 + 4
GPI 2	DSR	6 + 4
GPI 3	RI	9 + 4
GPI 4	CD	1 + 4

GPI OUTPUT Reference

(Pulses sent out from ***AirBox*** and ***TitleBox***)

GPI Output	Name	Contact Pins
GPI 1	DTR	4 + 5
GPI 2	RTS	7 + 5

APPENDIX 2 – Events Offset Behavior

The events' behavior can be affected depending on some specific situations that might occur during playback. Please, check the following cases to ensure proper event operation:

1. When jumping on an event:
   a) If the event has a negative offset, it is executed immediately;
   b) If the event has zero or positive offset, it is executed on time

2. When jumping before an event:
   a) If the event has an offset before the jump-to point, the event is executed immediately;
   b) If the event has an offset after the jump-to point, the event is executed on time.

3. When jumping after an event:
   a) If the event has an offset before the jump-to point, the event is not executed;
   b) If the event has an offset after the jump-to point, the event is executed on time.

4. When a fixed-time clip starts:
   a) Event is located after the fixed-time clip, but its negative offset is before the fixed time. The event is executed immediately.
   b) Event is located before the fixed-time clip and after the gap. Both from play and from stop mode the event will be executed on time, even with a negative offset.
   c) Event is located before the fixed-time clip and among the skipped clips. The event is executed as at jump after operation (see point 3. above), both from play and from stop modes.

5. Gaps behave the same way as clips regarding event offsets.

6. Starting a fixed-time clip behaves the same way as jumping to it regarding event offsets.

7. Logo events behave in a different way – when jumping to a clip, the last logo event before the clip is executed.

8. Video scaling events should behave like logo events, but at this time they don't. They now act as standard external events.

APPENDIX 3 – VDCP Implementation Chart

Command	Code	Req	Port	Implemented
System				
cmLocalDisable	000C		•	
cmLocalEnable	000D		•	
cmDeleteFromArchive	0014			
cmDeleteProtectID	0015			
cmUnDeleteProtectID	0016			
Imediate				
cmStop	1000	•	•	+
cmPlay	1001	•	•	+
cmRecord	1002	•	•	+
cmFreeze	1003		•	
cmStill	1004		•	+
cmStep	1005		•	
cmContinue	1006		•	+
cmJog	1007		•	
cmVariPlay	1008		•	
cmUnFreeze	1009		•	
cmEEMode	100A		•	
Preset/Select				
cmRenameID	201D			
cmPresetStdTime	201E			
cmNewCopy	201F			
cmSortMode	2020			
cmClosePort	2021	•	•	+
cmSelectPort	2022	•		+
cmRecordInit	2023	•	•	+
cmPlayCue	2024	•	•	+,v
cmCueWithData	2025		•	+,v
cmDeleteID	2026	•		
cmGetFromArchive	2027			
cmClear	2029			
cmSendToArchive	202A			
cmPercToSignalFull	202B			
cmRecordInitWithData	202C		•	
cmSelectLogicalDrive	202D		•	
cmSystemDeleteID	202E		•	
cmPreset	2030		•	
cmVidComprRate	2031		•	
cmAudSampleRate	2032		•	
cmAudComprRate	2033		•	
cmAudioInLevel	2034		•	
cmAudioOutLevel	2035		•	
cmVidComprParam	2037		•	
cmSelectOutput	2038		•	
cmSelectInput	2039		•	
cmRecordMode	203A		•	

Command	Code	Req	Port	Implemented
cmSCAdjust	2041		•	
cmHPosAdjust	2042		•	
cmDiskPreroll	2043		•	
cmCopyFileTo	2050		•	
cmDeleteFileFrom	2051		•	
cmAbortCopyFileTo	2052		•	
Sense Request				
cmOpenPort	3001	•		+
cmNext	3002	•		+,v
cmLast	3003			
cmPortStatusRequest	3005	•		+
cmPositionRequest	3006		•	+
cmActiveIDRequest	3007		•	+,v
cmDeviceTypeRequest	3008			+
cmSystStatusRequest	3010	•		+
cmIDList	3011	•		+,v
cmIDSizeRequest	3014			+,v
cmIDsAddedToArch	3015			
cmIDRequest	3016	•		+,v
cmComprSettRequest	3017		•	
cmIDsAddedList	3018	•		+,v
cmIDsDeletedList	3019	•		+,v
cmMultiPortStatusReq	3025		•?	
Macro				
cmAbortMacroNum	5060			
cmActiveMacroList	5061			
cmMacroStatus	5062			
cmCopyFileToMacro	5063			
cmGetFromArchiveMacro	5064			
cmSendToArchiveMacro	5065			
cmPrepareIDToPlay	5066		•	
cmCloseIDFromPlay	5067		•	

Key:

+ - Implemented

v- Implemented Long ID also (VAR commands)

APPENDIX 4 – Integration of AirBox with TitleBox

TitleBox settings:

1) Run **Programs > PlayBox Technology Ltd. >TitleBox PLNetInst.exe** and select a folder for your ***TitleBox*** templates.
2) Create your ***TitleBox*** projects.
3) Export them via **Network >Export project as template**, giving them respective names.
4) *.tmpl (template) files are exported in the templates folder.
5) Go to **Project\Options**, look at ***Network*** tab. Remember the TitleBox channel ID and Port values. Confirm any changes.
6) Go to **Network>Net control**. Run it.

That's all for ***TitleBox***. Now it stays in standby mode and executes the commands coming from ***AirBox***. Please note that it is not possible to edit objects in ***TitleBox*** while in this mode.

AirBox settings:

1) Go to **Settings ➔ Modules**, then to ***Remote control*** tab. Enable TitleBoxNetCtrl Output setting with **Yes**. Click Configure.
Enter same Channel ID and Port values as in ***TitleBox*** settings. Confirm.
2) Go to **Events ➔ Add/Insert event ➔** TitleBoxNetCtrl Output
3) There are two modes for event insertion - 'Wizard' or 'Advanced' (selectable through the ***Advanced*** button). You are recommended to choose the 'Wizard' mode for now. The functions are self-explanatory, but since this module is still under development, some of them are not functioning as desired...
4) In 'Wizard' mode you can choose between Template Control and Play Project - the first one is for global ***TitleBox*** control commands; the second one is for project/objects control commands.
5) If you have entered Play Project mode, further you can select your project by list - all exported template projects should appear in this list. Select a whole project or some objects from it.
6) Click ***Finish***. That's it!

Run ***AirBox***. When the time for a ***TitleBox*** event approaches, respective commands are being sent to ***TitleBox*** and it runs the appropriate objects.

GLOSSARY

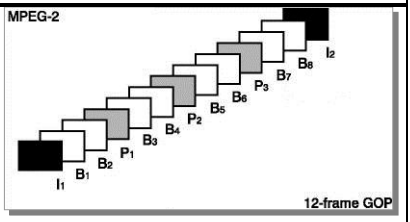
Abbreviation	Description
4:2:2@ML	4:2:2 Profile at Main Level – High quality, higher bit rate encoding used in professional video. It has more chroma information than 4:2:0 (the color sampling is in 4:2:2 format), a constrained version of which is used by BetacamSX using a 2-frame (IB) GOP producing a bitstream of 18 Mb/s, and I-frame only IMXVTRs with 50 Mb/s. It is a fully editable profile. *Synonyms: SP@ML*
A	Audio – Relating to sound or its reproduction; used in the transmission or reception of sound.
AES/EBU	The Audio Engineering Society (AES) and the EBU (European Broadcasting Union) together have defined a standard for Digital Audio, now adopted by ANSI (American National Standards Institute). Commonly referred to as 'AES/EBU', this digital audio standard permits a variety of sampling frequencies, for example CDs at 44.1 kHz, or digital VTRs at 48 kHz. 48 kHz is widely used in broadcast TV production.
AVI	Abbreviation for Audio-Video Interleaved; the algorithm created by Microsoft for synchronizing and compressing analogue audio and video signals. AVI is also the file format used by Video for Windows
AVI2MPG	AVI-to-MPEG Software Converter
BDE	Borland Database Engine
B-frames	Bi-directional predictive frames composed by assessing the difference between the previous and the next frames in a television picture sequence. As they contain only predictive information they do not make up a complete picture and so have the advantage of taking up much less data than the I-frames. To see the original picture, one has to decode information from a whole sequence of MPEG frames that includes an I-frame.

Abbreviation	Description
BNC	A connector for coaxial cable such as that used for some video connections and RG58 "cheapernet" connections. A BNC connector has a bayonet-type shell with two small knobs on the female connector which lock into spiral slots in the male connector when it is twisted on. *Different sources expand BNC as Bayonet Navy Connector, British Naval Connector, Bayonet Neill Concelman, or Bayonet Nut Connection.*
CBR	Constant Bit Rate
CD	Compact Disc – A 4.72 inch disc developed by Sony and Philips that can store, on the same disc, still and/or moving images in monochrome and/or color; stereo or two separate sound tracks integrated with and/or separate from the images; and digital program and information files.
Closed GOP	Closed Group Of Pictures – A GOP whose last B-frames do not refer to the following I-frame, but only to the preceding P-frame.
CPU	Central Processing Unit – The part of a computer (a microprocessor chip) that does most of the data processing (interprets and executes instructions); the CPU, together with the memory, form the central part of a computer to which the peripherals are attached
CVBS	Composite Video Broadcast Signal – analogue composite video
D1	A format for digital video tape recording working in 4:2:2 standard using 8-bit sampling. The tape is 19 mm wide and allows up to 94 minutes to be recorded on a cassette. As a component recording system, it is ideal for studio or postproduction work for its high chrominance bandwidth allowing excellent chroma keying. Also multiple generations are possible with very little degradation of quality. The D1 equipment can integrate without transcoding to various digital effects systems, disk recorders, telecines, graphics devices, etc. Despite the advantages, D1 equipment is not extensively used in general areas of TV production due to its high cost.

Abbreviation	Description
D9	Previously known as Digital-S, this is a half-inch digital tape format for video data recording at rate of 50 Mb/s. The tape can be shuttled and searched up to x32 speed. Video sampled at 4:2:2 is compressed at 3.3:1 using intra-frame compression. Two audio channels are recorded at 16-bit, 48 kHz sampling; each is individually editable. The format also includes two cue tracks and four further audio channels in a cassette housing with the same dimensions as VHS.
DAT	Video CD Media File
DCT	Discrete Cosine Transform - widely-used as the first stage of compression of digital video pictures. DCT operates on blocks of the picture (usually 8 x 8 pixels) resolving them into frequencies and amplitudes. DCT itself may not reduce the amount of data but it prepares it for following processes that will do so. JPEG, MPEG and DV compression depend on DCT.
Desktop	Windows Desktop – The area of the screen in graphical user interfaces against which icons and windows appear *Synonyms: background; screen background*
DirectDraw	The DirectDraw feature for Microsoft Windows CE .NET is the component of the DirectX application programming interface (API) that allows you to directly manipulate display memory, the hardware blitter, hardware overlays, and surface flipping.
DirectShow	DirectShow is an architecture for streaming media on the Microsoft Windows platform. DirectShow provides for high-quality capture and playback of multimedia streams. It supports a wide variety of formats, including Advanced Systems Format (ASF), Motion Picture Experts Group (MPEG), Audio-Video Interleaved (AVI), MPEG Audio Layer-3 (MP3), and WAV sound files.
DTMF	Dual Tone Multiple Frequency (or "touch-tone") It is a tone consisting of two frequencies superimposed. Individual frequencies are chosen such that it is easy to design filters and easy to transmit the tones through a telephone line having bandwidth of approximately 3.5 kHz. DTMF was not intended to be used for data transfer, it was meant to be used for sending the control signals along the telephone line. With standard decoders it is possible to send 10 beeps per second i.e., five bits per second. DTMF standard specifies 50ms tones and 600ms duration between two successive tones.
DTS	Decoding Time Stamp

Abbreviation	Description
DV	Digital Video – This digital VTR format is a co-operation between Hitachi, JVC, Sony, Matsushita, Mitsubishi, Philips, Sanyo, Sharp, Thomson and Toshiba. It uses quarter-inch wide tape in a range of products to record 525/60 or 625/50 video for the consumer (DV) and professional markets (Panasonic's DVCPRO and Sony's DVCAM). All models use digital intra-field DCT-based 'DV' compression (about 5:1) to record 8-bit component digital video based on 13.5 MHz luminance sampling. The consumer versions and DVCAM sample video at 4:1:1 (525/60) or 4:2:0 (625/50) video and provide two 16-bit/48 or 44.1 kHz, or four 12-bit/32 kHz audio channels. The recording rate is 25 Mb/s.
DVB	Digital Video Broadcasting, the group, with over 200 members in 25 countries, which developed the preferred scheme for digital broadcasting in Europe. The DVB Group has put together a satellite system, DVB-S, that can be used with any transponder, current or planned, a matching cable system, DVB-C, and a digital terrestrial system, DVB-T.
DVB-C	A transmission scheme for CABLE digital television.
DVB-S	A transmission scheme for SATELLITE digital television
DVB-T	The DVB-T is a transmission scheme for TERRESTRIAL digital television. Its specification was approved by ETSI in February 1997 and DVB-T services started in the UK in Autumn 1998. As with the other DVB standards, MPEG-2 sound and vision coding are used. It uses Coded Orthogonal Frequency Division Multiplexing (COFDM), which spreads the signals over a large number of carriers to enable it to operate effectively in very strong multipath environments. The multipath immunity of this approach means that DVB-T can operate an overlapping network of transmitting stations with a single frequency. In the areas of overlap, the weaker of the two received signals is rejected.
DVCPRO	Panasonic's development of native DV which records an 18-micron track on metal particle tape. DVCPRO uses native DV compression at 5:1 from a 4:1:1, 8-bit sampled source. It uses 12 tracks per frame for 625/50 sources and 10 tracks per frame for 525/60 sources. The video data rate is 25 Mb/s. It includes two 16-bit digital audio channels sampled at 48 kHz and an analogue cue track. Both Linear (LTC) and Vertical Interval Time Code (VITC) are supported.

Abbreviation	Description
DVCPRO50	In many ways this is a x2 variant of DVCPRO with a video data rate of 50 Mb/s and using 3.3:1 video compression, it is aimed at the studio/higher quality end of the market. Sampling is 4:2:2 to give enhanced chroma resolution, useful in post production processes (e.g. chroma keying). Four 16-bit audio tracks are provided.
DVD	Digital Versatile Disk – a high-density development of the compact disk. It is the same size as a CD but stores upwards from 4.38 GB of actual data (seven times CD capacity) on a single-sided, single-layer disk. DVDs can also be double-sided or dual-layer – storing even more data. The capacities commonly available at present: DVD-5 Single-side, single-layer 4.38 GB DVD-9 Single-side, dual-layer 7.95 GB DVD-10 Double-sided, single-layer 8.75 GB DVD-18 Double-sided, dual-layer 15.9 GB DVD-5 and DVD-9 are widely used. The double-sided disks are quite rare, partly because they are more difficult to make and they cannot carry a label.
DVD-Video	This combines the DVD optical disk with MPEG-2 video compression for recording video on a CD-sized disk and has multi-channel audio, subtitles and copy protection capability. To maximize quality and playing time DVD-Video uses variable bit rate (VBR) MPEG-2 coding where the bit rate varies with the demands of the material.
Field	One half of a complete picture (or frame) interval, containing all of the odd or even scanning lines of the picture.
Frame	*Video:* The combination of two successive "fields". Therefore two fields equal a frame *Film:* One image or picture on a motion picture film; The single complete image of motion picture film: the area occupied by one such image.
Full-D1	Standard Definition with 720 (h) x 576 (v) pixels resolution
Genlock	Synchronizing of the video signal clock of a devise with that of an external device in order to achieve equal frequencies and phases of the clock signals.

Abbreviation	Description
GOP	Group Of Pictures. In an MPEG signal the GOP is a group of pictures or frames between successive I-frames, the others being P and/or B-frames.  In the widest application, television transmission, the GOP is typically 12 frames in a 25 fps signal and 15 frames in a 30 fps signal (i.e. about half a second) but this can vary.
GPI	General Purpose Interface – The generation of electrical pulses to act as triggers for something. The generation may vary from simple contact closure to electronically generated pulses.
H/W	Hardware – A computer and the associated physical equipment directly involved in the performance of data-processing or communications functions.
Half-D1	Standard Definition with 352 (h) x 576 (v) pixels resolution
HDD	Hard Disk Drive – A disk drive used to read and write hard disks.
HDTV	High Definition Television. A television format with higher definition than SDTV. While DTV at 625 or 525 lines is usually superior to PAL and NTSC, it is generally accepted that 720- line and upward is HD. This also has a picture aspect ratio of 16:9. There are many picture formats proposed and several in use, but there is increasing consensus that 1080 x 1920/24P is a practical standard for global exchange.
IDE	Integrated Drive Electronics (presently ATA). A disk drive interface standard based on the IBM PC ISA 16-bit bus but also used on other personal computers. The ATA specification deals with the power and data signal interfaces between the motherboard and the integrated disk controller and drive. The ATA "bus" only supports two devices - master and slave. *Synonyms: ATA, AT Attachment*

Abbreviation	Description
IEEE-1394	A standard for a peer-to-peer serial digital interface which can operate at 100, 200, or 400 Mb/s. IEEE 1394 is recognized by SMPTE and EBU as networking technology for transport of packetized video and audio. Its isochronous data channel can provide guaranteed bandwidth for frame-accurate real-time (and faster) transfers of video and audio, and its asynchronous mode can carry metadata and support I/P. Both modes can be run simultaneously. *Synonyms: FireWire, I-Link*
I-frames	Intra-frames - these contain all required data to reconstruct a whole picture - very similar to JPEG.
LAN	Local Area Network. A system that links together electronic office equipment, such as computers and word processors, and forms a network within an office or building.
LOG	Logging – the process of creating a record, as of the performance of a machine or the progress of an undertaking.
M/B	The PC Motherboard – It contains the bus, the microprocessor, and integrated circuits used for controlling any built-in peripherals such as the keyboard, text and graphics display, serial ports and parallel ports, joystick, and mouse interfaces.
Mini-DIN	A type of Multi-Purpose Connector, often used for S-video signals
MP@ML	Main Profile at Main Level covers broadcast television formats up to 720 pixels x 576 lines and 30 fps so includes 720 x 486 at 30 fps and 720 x 576 at 25 fps. The economy of 4:2:0 sampling is used and bit rates vary from as low as 2 Mb/s on multiplexed transmissions, up to 9 Mb/s on DVD-video. *Synonyms: 4:2:0@ML* ♦***Profile:*** *a defined sub-set of the entire bitstream syntax.* ♦***Level:*** *a defined set of constraints imposed on parameters in the bitstream. For details, check ISO/IEC JTC1/SC29/WG11 Standard of the International Organization for Standardization*
MPA	MPEG Audio File
MPEG	Motion Pictures Expert Group of the International Organization for Standardization (ISO) that has defined multiple standards for compressing audio and video sequences. MPEG is also referred to as both a type of compression and a video format.

Abbreviation	Description
MPEG1	The international compression standard for the conversion of analogue motion video to digital motion video that includes both video and audio data. MPEG meets the needs of CD-ROM and video-on-demand applications. Actual compression over uncompressed digital video is about 100:1. MPEG-1 was initially designed to deliver near-broadcast quality video through a standard speed CD-ROM. Playback of MPEG-1 video requires either a software decoder coupled with a high-end computer or a hardware decoder. Its quality is not sufficient for TV broadcast. *ISO-11172*
MPEG2	A family of inter- and intra-frame compression systems designed to cover a wide range of requirements from 'VHS quality' all the way to HDTV through a series of compression algorithm 'profiles' and image resolution 'levels'. With data rates from below 3 to 100 Mbit/s, the family includes the compression system that delivers digital TV to the home and that puts video onto DVDs. Coding the video is very complex, generally producing I, P and B-frames, and is designed to keep the decoding at the reception end as simple, and therefore cheap, as possible. MPEG-2 generally uses very high compression rates and can offer better quality pictures than M-JPEG or DV for a given bitrate, but is less editable. It uses intra-frame compression to remove redundancy within frames as well as inter-frame compression to take advantage of the redundancy contained over series of many pictures. This creates long groups of pictures (GOPs). *ISO-13818*
MPG	MPEG Program Stream File
MS	Microsoft
NLE	Non-Linear Editing. Random-access editing of video and audio on a computer, enabling edits to be processed and reprocessed at any point in the timeline, at any time. Traditional videotape editors are linear because they require editing video sequentially, from beginning to end. The term is widely used in association with off-line editing systems storing highly compressed pictures but on-line non-linear systems are increasingly available. There is a wide range of systems claiming on-line quality – many using video compression.

Abbreviation	Description
NTSC	Abbreviation for the National Television Standards Committee that standardized the NTSC color broadcasting system currently used in the United States. This video format standard is also called composite because it combines all the video information, including color, into a single signal. The bandwidth of the NTSC system is 4.2 MHz for the luminance signal and 1.3 and 0.4 MHz for the I and Q color channels.
O/S	Operating System. The low-level software which handles the interface to peripheral hardware, schedules tasks, allocates storage, and presents a default interface to the user when no application program is running.
ODBC	Open Database Connectivity. In computing, ODBC provides a standard software API method for using database management systems (DBMS). The designers of ODBC aimed to make it independent of programming languages, database systems, and operating systems
OpenDML	OpenDML AVI (DirectShow)
OSD	On-Screen-Display used for graphics overlay
PAL	Phase Alternating Line. The color coding system for television widely used in Europe and throughout the world, almost always with the 625/50 line/field system. It was derived from the NTSC system but by reversing the phase of the reference color burst on alternate lines (Phase Alternating Line) is able to correct for hue shifts caused by phase errors in the transmission path. Bandwidth for the PAL-I system is typically 5.5 MHz luminance, and 1.3 MHz for each of the color difference signals, U and V.
P-frames	Used from Main Profile upwards, these contain only predictive information (not a whole picture) generated by looking at the difference between the present frame and the previous one. As with B-frames they hold less data than I- frames and a whole GOP must be decoded to see the picture.
PID	Program ID
PL	Playlist
plug-ins	Plug-in modules
PTS	Presentation Time Stamp

Abbreviation	Description
RAM	Random Access Memory. The most common computer memory which can be used by programs to perform necessary tasks while the computer is on; an integrated circuit memory chip allows information to be stored or accessed in any order and all storage locations are equally accessible. *Synonyms: random-access memory, random memory, read/write memory*
RCA	A connector for Unbalanced Audio
ROM	Read-Only Memory. Memory hardware that allows fast access to permanently stored data but prevents addition to or modification of the data.
RS-232	A standard for serial data communications defined by EIA standard RS-232 and is designed for short distances only - up to 10 meters. It uses single-ended signaling with a conductor per channel plus a common ground, which is relatively cheap, easy to arrange but susceptible to interference - hence the distance limitation.
RS-422	Not to be confused with 4:2:2 sampling or 422P MPEG, this is a standard for serial data communications defined by EIA standard RS-422. It uses current-loop, balanced signaling with a twisted pair of conductors per channel, two pairs for bi-directional operation. It is more costly than RS232 but has a high level of immunity to interference and can operate over reasonably long distances - up to 300m/1000 ft.
RSS	RSS is a family of Web feed formats used to publish frequently updated content such as blog entries, news headlines, and podcasts in a standardized format. An RSS document (which is called a "feed" or "web feed" or "channel") contains either a summary of content from an associated web site or the full text. RSS makes it possible for people to keep up with web sites in an automated manner that can be piped into special programs or filtered displays.
S/W	Software. The instructions executed by a computer, as opposed to the physical device on which they run (the "hardware"). The term was coined by the eminent statistician, John Tukey. Programs stored on non-volatile storage built from integrated circuits (e.g. ROM or PROM) are usually called firmware. *Synonyms: "computer program", "program", "code"*
SCR	System Clock Reference

Abbreviation	Description
SCSI	The Small Computer Systems Interface is a very widely used high data rate, general purpose parallel interface. A maximum of eight devices can be connected to one bus (16 for Wide SCSI), for example a controller, and up to seven disks or devices of different sorts – hard disks, optical disks, tape drives, scanners, etc. – and may be shared between several computers. The SCSI interface is used by manufacturers for high performance drives while ATA is popular for lower performance drives.
SDI	Serial Digital Interface. The standard digital television studio connection based on a 270 Mb/s transfer rate. This is a 10-bit, scrambled, polarity-independent interface, with common scrambling for both component ITU-R BT.601 and composite digital video and four groups each of four channels of embedded digital audio. Most new broadcast digital equipment includes SDI which greatly simplifies its installation and signal distribution. It uses the standard 75 ohm BNC connector and coax cable as is commonly used for analogue video, and can transmit the signal over 200 meters (depending on cable type)
SDK	Software Developers Kit. Typically a software and documentation package to facilitate the development of applications to run on a given operating system or other application. It provides another layer on top of an API, often including shortcuts and pre-built routines to make development easier and final operation faster.
SDTI	Serial Digital Transport Interface (SMPTE 305M). Based on SDI, this provides real-time streaming transfers. It does not define the format of the signals carried but brings the possibility to create a number of packetized data formats for broadcast use. There are direct mappings for SDTI to carry Sony SX, HD-CAM, DV-DIFF (DVCAM, DVCPRO 25/50, Digital-S) and MPEG TS.
SDTV	Standard Definition Television. A digital television system in which the quality is approximately equivalent to that of analogue 525/60 or 625/50 systems.
shortcut	File Shortcut
SPDIF	Serial Digital Audio interface
Trim	Trimming. Editing a clip on a frame-by-frame basis, or editing clips in relationship to one another.
TV	Television

Abbreviation	Description
V	Video. A means for reproducing moving visual images by representing them with an analog electronic signal. The images are decomposed into a series of horizontal scan lines. In this way the signal can be stored, transmitted and reproduced. There are various standards that define this signal (NTSC, PAL, SECAM, RGB). Referring to the NTSC composite video standard, this is a widespread standard such that the video in of one machine is compatible with the video out of another.
VBR	Variable Bit Rate. While many video compression schemes are 'constant bit rate' – designed to produce fixed data rates irrespective of the complexity of the picture, VBR offers the possibility of fixing a constant picture quality by varying the bit-rate according to the needs of the picture. This allows the images that require little data, like still frames in MPEG-2, to use little data and to use more for those that need it, to maintain quality. The result is an overall saving in storage – as on DVDs – or more efficient allocation of total available bit-rate in a multi-channel broadcast multiplex.
VGA	Video Graphics Array. A display standard for IBM PCs, with 640 x 480 pixels in 16 colors and a 4:3 aspect ratio. There is also a text mode with 720 x 400 pixels. IBM technical references define the *product name* of their original VGA display board as "Video Graphics Array", in contrast to the preceding boards, the "Color Graphics Adapter" (CGA) and "Enhanced Graphics Adapter" (EGA).
VideoCD	Video Compact Disc
VOB	DVD-Video Object / Video Object file
WAN	Wide Area Network
WAV	An audio file format developed by Microsoft that carries audio that can be coded in many different formats. Metadata in WAV files describes the coding used. To play a WAV file requires the appropriate decoder to be supported by the playing device. *Synonyms: .WAV*
Windows	MS Windows (2000, XP)
XLR	A Connector for Balanced Audio
Y/C	Analogue S-Video. Short for Super-video, a technology used for transmitting video signals over a cable by dividing the video information into two separate signals: one for luminance and one for chrominance. (S-Video is synonymous with Y/C video). S-video is a consumer form of component video used primarily with Hi8 and S-VHS equipment.

Abbreviation	Description
YUV	Convenient shorthand commonly – but incorrectly – used to describe the analogue luminance and color difference signals in component video systems. Y is correct for luminance but U and V are, in fact, the two sub-carrier modulation axes used in the PAL color coding system. Scaled and filtered versions of the B-Y and R-Y color difference signals are used to modulate the PAL sub-carrier in the U and V axes respectively. The confusion arises because U and V are associated with the color difference signals but clearly they are not the same thing.

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